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Oceans and the law of the sea

Oceans and the law of the sea

Report of the Secretary-General

Summary

The present report has been prepared pursuant to the request of the General Assembly in paragraph 202 of its resolution 64/71 that the Secretary-General submit to the Assembly at its sixty-fifth session a comprehensive report on oceans and the law of the sea, and make the section of the report relating to the topic of focus of the eleventh meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea available at least six weeks in advance of the meeting of the Consultative Process. The present report constitutes the first part of the comprehensive report of the Secretary-General on oceans and the law of the sea. It is also being submitted to States parties to the United Nations Convention on the Law of the Sea, pursuant to article 319 of the Convention. The report examines the relevance and scope of capacity-building, presents an overview of the capacity-building needs of States in marine science and other areas of ocean affairs and the law of the sea and reviews current capacity-building activities and initiatives in those areas. The report also addresses the challenges in implementing capacity-building activities and initiatives, and identifies opportunities for ways to move forward.

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Abbreviations

FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
IAEA	International Atomic Energy Agency
IHO	International Hydrographic Organization
ILO	International Labour Organization
IMO	International Maritime Organization
NEPAD	New Partnership for Africa's Development
OAS	Organization of American States
OECD	Organization for Economic Cooperation and Development
OHCHR	Office of the United Nations High Commissioner for Human Rights
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UN-Habitat	United Nations Human Settlements Programme
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
UNODC	United Nations Office on Drugs and Crime
UNU	United Nations University
WHO	World Health Organization
WMO	World Meteorological Organization

I. Introduction

1. Pursuant to the request of the General Assembly in its resolution 64/71, the present report is being submitted to the sixty-fifth session of the General Assembly and to the eleventh meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, as well as to the twentieth meeting of States parties to the United Nations Convention on the Law of the Sea.

2. In paragraph 193 of its resolution 64/71, the General Assembly decided that the eleventh meeting of the Consultative Process would focus its discussions on capacity-building in ocean affairs and the law of the sea, including marine science. The present report addresses that topic.

3. As was the case last year, comprehensive coverage of developments with respect to ocean affairs and the law of the sea, other than the topic of focus of the Consultative Process, will be included in the second part of the report. That document will be made available prior to the consideration of the item "Oceans and the law of the sea" by the General Assembly,[1] together with the report on the fundamental building blocks of the regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects (see resolution 64/71, para. 179).

4. The present report benefited from the contributions of intergovernmental organizations engaged in activities relating to ocean affairs and the law of the sea.[2] Also relevant to the consideration of the topic of focus are two earlier reports of the Secretary-General which dealt with the needs of States with regard to the development and management of ocean resources (A/45/712) and measures undertaken in response to the needs of States in regard to development and management of ocean resources, and approaches for further action (A/46/722), as well as the study prepared by the Secretariat entitled "Available assistance to and measures that may be taken by developing States, in particular the least developed States and small island developing States, as well as coastal African States, to realize the benefits of sustainable and effective development of marine resources and uses of the oceans within the limits of national jurisdiction" (A/63/342). Additional relevant documents include other reports of the Secretary-General on oceans and the law of the sea and on fisheries issues[3] and the reports on the work of the Consultative Process, as well as other material emanating from those meetings. Particularly relevant in this regard are the second and third meetings of the Consultative Process (see A/56/121 and A/57/80), which, inter alia, discussed the topics of "marine science and the development and transfer of marine technology, as mutually agreed, including capacity-building" and "capacity-building, regional cooperation and coordination, and integrated ocean management as important cross-cutting issues to address ocean affairs, such as marine science and transfer of

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[1] See resolution 64/71, para. 202. The comprehensive coverage of issues, other than the topic of focus of the Consultative Process, in a single document is aimed at streamlining the reporting thereon and reducing the total length of the reports of the Secretary-General.

[2] Received pursuant to the request of the General Assembly in its resolution 64/71, para. 196. The full texts of all contributions are available on the website of the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, at www.un.org/depts/los/consultative_process/consultative_process.htm.

[3] These are available on the website of the Division for Ocean Affairs and the Law of the Sea (www.un.org/Depts/los).

technology, sustainable fisheries, the degradation of the marine environment and the safety of navigation".

5. Chapter II of the present report is focused on the relevance and scope of capacity-building in oceans and the law of the sea, including marine science. Chapter III presents an overview of the capacity-building needs of States in marine science and other areas of ocean affairs and the law of the sea. Chapter IV contains a review of means of implementation of capacity-building activities and initiatives in marine science and other areas of ocean affairs and the law of the sea, based mainly on the information provided by intergovernmental organizations. Chapter V addresses the challenges in implementing capacity-building activities and initiatives and identifies opportunities for ways to move forward.

II. Relevance and scope of capacity-building

6. Member States have repeatedly expressed the need for capacity-building in ocean affairs and the law of the sea, including marine science, in General Assembly resolutions and meetings of the Consultative Process, among others.[4] Notably, in its most recent resolution on oceans and the law of the sea, the General Assembly reiterated "the essential need for cooperation, including through capacity-building and transfer of marine technology, to ensure that all States, especially developing countries, in particular the least developed countries and small island developing States, as well as coastal African States, are able both to implement the Convention and to benefit from the sustainable development of the oceans and seas, as well as to participate fully in global and regional forums and processes dealing with oceans and law of the sea issues" (resolution 64/71, seventh preambular paragraph).

7. Furthermore, the General Assembly has noted that promoting and developing the marine scientific and technological capacity of developing States, in particular the least developed countries and small island developing States, with a view to accelerating their social and economic development, is essential for the effective implementation of the United Nations Convention on the Law of the Sea.[5,6] Similarly, in several resolutions on sustainable fisheries, the General Assembly emphasized the need for Member States to rely on scientific advice in adopting conservation and management measures (see para. 152 below).[7]

8. The framers of the Convention were keenly aware of the need for capacity-building, especially in the absence of any fund or assistance programme embedded in the Convention itself.[8] As was pointed out by the co-chairs of the Consultative Process at the third meeting "although the United Nations Convention on the Law of the Sea does not use the phrase 'capacity-building', it contains over 25 references to the need to help developing States and take their concerns into account" (see A/AC.259/L.3, appendix II, para. 6). For example, the Convention, in part XIV on development and transfer of marine technology, requires States to promote the development of the marine scientific and technological capacity of developing

[4] See A/64/66, para. 155, for an outline of some of the issues discussed.

[5] United Nations, *Treaty Series*, vol. 1836, No. 31364.

[6] See resolution 55/7, annex II, para. 1; see also A/56/58, para. 541.

[7] See resolutions 64/72 and 63/112, para. 7; 62/177 and 61/105, para. 6; 60/31, para. 64; and 59/25, paras. 59 and 66.

[8] See A/AC.259/L.3, appendix II, para. 6, and A/57/57, para. 573.

States with regard to the exploration, exploitation, conservation and management of marine resources; the protection of the marine environment; marine scientific research; and other activities in the marine environment compatible with the Convention in order to accelerate the social and economic development of developing States.[9] In addition, part XIV also reflects the importance of marine science, related knowledge and expertise and marine infrastructure, as well as the need for capacity-building in those areas. Article 202 of the Convention also recognizes the need for scientific and technical assistance to developing States, including training, infrastructure and equipment support, while article 203 calls for preferential treatment for developing States in that regard. Transfer of technology for the purposes of part XI of the Convention is addressed not only in article 144 and other provisions of the Convention but also in section 5 of the annex to the Agreement relating to the implementation of part XI of the Convention (General Assembly resolution 48/263, annex).

9. A number of international legal instruments governing specific activities in the oceans and seas also include requirements relating to the capacity-building of developing countries, for example, the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks[10] (United Nations Fish Stocks Agreement) (see also para. 151 below).

10. In addition, Agenda 21 adopted at the United Nations Conference on Environment and Development[11] addressed the capacity-building needs of States. Chapter 17 of Agenda 21 sets out for each of the seven programme areas[12] specific suggestions about capacity-building, financing and cost evaluation, scientific and technological means and human resource development. Chapter 34 of Agenda 21 is dedicated to the transfer of environmentally sound technology, cooperation and capacity-building. It also highlights the support of endogenous capacity-building and the promotion of long-term technological partnerships between holders of environmentally sound technologies and potential users (see Agenda 21, chapter 34, para. 34.14, especially subparas. (d) and (e)). Chapter 37 of Agenda 21 is dedicated entirely to capacity-building (see para. 16 below).

11. The Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation),[13] sets out, inter alia, concrete steps and

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[9] See United Nations Convention on the Law of the Sea, article 266; see also A/45/712, para. 13.

[10] United Nations, *Treaty Series*, vol. 2167, No. 37924.

[11] See *Report of United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I: Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II. For a brief summary of the programme areas, see A/56/58, paras. 550-556.

[12] These areas are integrated management and sustainable development of coastal and marine areas, including exclusive economic zones; marine environmental protection; sustainable use and conservation of marine living resources of the high seas; sustainable use and conservation of marine living resources under national jurisdiction; addressing critical uncertainties for the management of the marine environment and climate change; strengthening international, including regional, cooperation and coordination; and sustainable development of small islands.

[13] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

quantifiable targets for better implementing Chapter 17 of Agenda 21[14] and also "reconfirmed the priority of building capacity to assist developing countries to obtain their sustainable development goals".[15]

12. Furthermore, the Programme of Action for the Sustainable Development of Small Island States (Barbados Programme of Action) and the Mauritius Strategy for the Further Implementation of the Barbados Programme of Action both call for particular attention to be given to building resilience in small island developing States to environmental risk, including through technology transfer and development, capacity-building and human resource development (see A/CONF.207/11).

13. The United Nations Millennium Declaration includes a section on "meeting the special needs of Africa", in which Member States resolved to "take special measures to address the challenges of poverty eradication and sustainable development in Africa, including ... enhanced official development assistance and increased flows of foreign direct investment, as well as transfers of technology" (General Assembly resolution 55/2, para. 28).

14. Other recent outcomes of United Nations multilateral processes are also of relevance to capacity-building in ocean affairs and the law of the sea, for example, the 2008 Doha Declaration on Financing for Development: outcome document of the Follow-up International Conference on Financing for Development to Review the Implementation of the Monterrey Consensus (A/CONF.212/L.1/Rev.1) and the Accra Agenda for Action (A/63/539, annex), endorsed on 4 September 2008 at the Third High-level Forum on Aid Effectiveness by ministers of developing and donor countries responsible for promoting development and heads of multilateral and bilateral development institutions.[16]

15. Limitations in capacity hinder States, in particular developing countries, especially the least developed among them and small island developing States, not only from benefiting from oceans and seas and their resources pursuant to the United Nations Convention on the Law of the Sea, but also from effectively complying with the range of obligations under that Convention and other international conventions, as well as from effectively achieving the goals set out in Chapter 17 of Agenda 21 and the Johannesburg Plan of Implementation. Such limitations also have a negative impact on their ability to achieve the Millennium Development Goals and to meet the challenges of climate change.

16. *Scope of capacity-building.* Agenda 21 contains no definition of capacity-building. Chapter 37 describes capacity-building as encompassing a country's human, scientific, technological, organizational, institutional and resource capabilities (see Agenda 21, chap. 37, para. 37.1). In this regard, it is recognized that both financial and in-kind assistance can be useful for implementing capacity-building measures. Essentially, such measures broaden and deepen the human

[14] Ocean issues are dealt with in part IV of the Johannesburg Plan of Implementation, under the key thematic area "Protecting and managing the natural resource base of economic and social development". Part VII of the Johannesburg Plan of Implementation addresses the sustainable development of small island developing States; see also A/57/57/Add.1.

[15] See Global Environment Facility, "Strategic approach to enhance capacity-building" (2003), available from www.gefweb.org.

[16] Also relevant is the 2005 Paris Declaration on Aid Effectiveness.

resource base, strengthen the institutional structure and the institutions themselves and expand the physical resource base (see A/57/57, para. 574).

17. Recognizing the fact that "capacity" is a complex concept, the World Bank observed that at the heart of the international development consensus was the notion that capacity was the ability of individuals, institutions and societies to solve problems, make informed choices, define their priorities and plan their futures. The objective of aid assistance is to help developing countries build capacities that boost their ability to achieve their development goals.[17]

18. The Global Environment Facility (GEF) considers capacity development to be about people, their organizations and their institutions, developing whatever tools they feel are necessary to control their own development and create societies that work for them.[18] GEF also refers to capacity development as a dynamic, holistic and ongoing experience involving planned and unplanned processes that are at work and that shape the course of things over a period of time.[19]

19. The United Nations Development Programme (UNDP) regards capacity development as "a perpetually evolving process" through which "individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time".[20]

20. Based on the technical cooperation strategy that was adopted by the United Nations Conference on Trade and Development's (UNCTAD) Trade and Development Board in October 2003, the assistance of UNCTAD is also based on the capacity development concept that is being used in the United Nations system.[21]

21. Generally, capacity-building is referred to variously as capacity development or capability development (technical- and financial-assistance and institution-building), which may be achieved through bilateral or multilateral support. The development community charts a progression of the concept of capacity-building from the development aid and technical assistance of the 1960s and 1970s, to technical cooperation and capacity-building in the 1980s and 1990s, to the present-day paradigm of capacity development. It recognizes the existing capacities and basically considers that capacity is development, stating that "capacity development is about transformations that empower individuals, leaders, organizations and

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[17] See "Building effective states, forging engaged societies", report of the World Bank Task Force on Capacity Development in Africa (September 2005), available from http://go.worldbank.org/0HJ4D0HZO1.

[18] See Global Environment Facility/United Nations Development Programme, "Capacity development initiative: assessment of capacity development in the Global Environment Facility porfolio" (2000).

[19] See Global Environment Facility, "Strategic approach to enhance capacity-building".

[20] See United Nations Development Programme (UNDP) "Capacity development: a UNDP Primer" (2009), available from www.undp.org/capacity.

[21] See United Nations Conference on Trade and Development, "Technical cooperation activities: review of technical cooperation activities of the United Nations Conference on Trade and Development", decision 478(L), 19 October 2003, annex, paras. 2-10. The strategy was developed following several consultations with member States. See www.unctad.org.

societies".[22] Nevertheless, the traditional model of capacity-building ignored existing capacities and merely imported and applied knowledge from elsewhere.[18]

22. Thus, nowadays capacity development is premised on ownership by developing countries, that is, by their designing, directing, implementing and sustaining the process themselves, optimizing local resources — people, skills, technologies and institutions — and building on them. It assumes that "people are best empowered to realize their full potential when the means of development are sustainable — home-grown, long-term and generated and managed collectively by those who stand to benefit". It can range from any effort to teach someone to do something or to do it better to creating new institutions or strengthening old ones to education and training, as well as, more broadly, improving individual rights, access and freedoms. It is therefore a gradual process, with the country taking the initiative to tailor interventions to meet its needs by investing and building on human capital and changing and strengthening institutional practices.[20]

23. According to GEF, capacity-building should generally be regarded as a dynamic, multifaceted process: mobilization of existing potential or individual expertise that may be unutilized or under-utilized because it does not reside in the institution that is charged with the relevant responsibility or because of organizational deficiencies, among other reasons; enhancement of capacity to avoid obsolescence through continuous utilization and by providing short-term courses, workshops, seminars and other training services; conversion or adjustment of existing capacity to deal with new problems; capacity creation through formal training programmes; and, finally, succession, or the improvement of capacities by subsequent generations, and capacity retention.[19]

24. For the purposes of the present report, and in the interests of consistency, the term "capacity-building" is used broadly to encompass technical assistance or cooperation, traditional capacity-building and capacity development, since they are all relevant at various stages of development.

Implementation of capacity-building through various means and levels

25. There are several different approaches to the implementation of capacity-building, such as technology cooperation, including transfer of technology and know-how; programmes of cooperation and assistance, including financial assistance; and collaborative arrangements and partnerships.[23]

26. The United Nations Development Programme is of the view that these approaches are applied at three general levels, namely the societal (the enabling environment), the institutional (institution-building and strengthening) and the individual (human resource development). Some of the interventions that lead to the development of capacity are described below, though not exhaustively. The United Nations Development Programme considers these levels to be an integrated system,

[22] According to the United Nations Development Programme, "decades of experimenting with development models have confirmed the value of local ownership and capacity. While financial resources are vital, they alone cannot sustain human development. Technical cooperation may be appropriate in some instances to address short-term needs, but tends to be donor-driven and expensive, and to rely unduly on foreign expertise while distorting national priorities." (See United Nations Development Programme, "Capacity development: a United Nations Development Programme primer".

[23] See footnote 13, Johannesburg Plan of Implementation, paras. 96, 105 and 106 (c).

i.e. "they influence each other in a fluid way — the strength of each depends on, and determines, the strength of the others."[20]

27. *Societal*. According to GEF, the overall scope for capacity development is set by the enabling environment, since it is the broad social system within which people and organizations function and includes all the rules, laws, policies, power relations and social norms that govern civic engagement. Some of the interventions targeted at the enabling environment include capacity-building activities and initiatives for raising public awareness and undertaking educational, training, research and public awareness programmes and strengthening institutions capable of carrying out such programmes; sensitization and education of the political leadership, decision-makers and communities; enlisting media and community-based organizations to play their role in good governance; and preparation of tools for information dissemination, public education and outreach.[19]

28. *Institutional*. The development of the capacity of the internal structure, policies and procedures that determine an organization's effectiveness are important, as it is through these elements that the benefits of the enabling environment are put into action and that individuals come together. The better resourced and aligned these elements are, the greater the potential for growing capacity. In this regard, several interventions are relevant, including those highlighted below.

29. Interventions can be targeted at creating and strengthening physical, as well as institutional, infrastructure, including through the provision and mobilization of raw materials, equipment, facilities and vessels (see A/57/57, para. 574). They can also include technical cooperation, including technology transfer[24] and know-how, which should serve the purpose of long-term capacity-building and which needs to be managed and coordinated by countries themselves.

30. Interventions targeted at strengthening scientific, legal and institutional structures, including skills, knowledge and technical know-how at the individual and institutional levels (see Agenda 21, para. 37.2), are also important. They may include the development of national legislation, regulations or other administrative measures, as well as the formulation and implementation of national strategies and policies and the conduct of assessments (see www.un.org/esa/dsd).

31. Further relevant interventions include improving access to information, establishing partnerships, developing training materials and facilitating the exchange of data, information and experiences through networking, horizontal exchanges and cooperation, creating multi-stakeholder project steering committees, internships and the sharing of project management responsibilities with stakeholders.[18]

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[24] The Intergovernmental Panel on Climate Change defines technology transfer as "a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders such as Governments, private sector entities, financial institutions, non-governmental organizations and research/educational institutions". See Intergovernmental Panel on Climate Change, *Methodological and Technological Issues in Technology Transfer: Summary for Policymakers* (2000). See also United Nations Department of Economic and Social Affairs "Climate change: technology development and technology transfer", background paper for the Beijing High-Level Conference on Climate Change (2008), available from www.un.org/esa/dsd/.

32. *Individual/human resource development.* At this level, capacity-building generally relates to the development of the skills, experience and knowledge that allow each person to perform. These may be acquired formally, through education and training, or informally, through doing and observing.[20] Activities related to human resource development may include short courses, training (including the training of trainers and in-service technical training), workshops, seminars, strengthening institutional capacities by transferring leadership, proposal-writing and team-building skills (see www.ioc-cd.org). With regard to training, the duration of the interventions (for example, university programmes versus training programmes) and their target levels may determine whether they are long-term institutional or short-term individual interventions. Other activities are capacity-building for accessing documentation (electronic access, or facilities and training for translation into the local working language) and the identification and financing of local or regional experts to assist in preparing project concepts and proposals.[25]

III. Capacity-building needs of States

A. Overview

33. No comprehensive assessment has been carried out at the global level of the capacity-building needs of States in relation to ocean affairs and the law of the sea, including marine science. The information presented in the present chapter is drawn from the contributions of intergovernmental organizations to the present report; previous reports of the Secretary-General (see para. 4 above); relevant General Assembly resolutions; the reports of the Consultative Process; the recent findings of the secretariat of the Convention on Biological Diversity, following an assessment of the implementation of its programme of work on marine and coastal biological diversity, conducted through national and voluntary reports; documents prepared by the Division for Ocean Affairs and the Law of the Sea in relation to fisheries (see paras. 92 and 153 below); and the needs identified by the Global Forum on Oceans, Coasts and Islands' working group on capacity development.[26] The information presented in the present section cannot be considered exhaustive. Notably, it does not include the input of States, since the General Assembly, in its resolution 64/71, did not request the Secretary-General to seek their views.

34. The needs outlined in the present chapter are ongoing and likely to extend over several years. Furthermore, similar to the early 1990s, when the Secretary-General issued a report on the needs of States in this area (see para. 4 above), a disparity seems to continue to exist among national experiences, ranging from those countries which are not yet in a position to take any substantial measures to develop the potential benefits provided by the United Nations Convention on the Law of the Sea to those countries which have developed some capabilities and have taken initiatives in securing jurisdiction over their extended maritime zones, adopting ocean development policies and implementing programmes and projects (see A/46/722, para. 15). Nevertheless, since that period, there have been shifts in needs, priorities and development goals. In addition, new problems and challenges at the global,

[25] See "Strategic approach to enhance capacity-building" (see footnote 15).

[26] See Global Forum on Oceans, Coasts and Islands, working group on capacity development, policy brief on capacity development (30 March 2008).

regional and national levels have emerged, and the needs have evolved together with those challenges (see A/63/342, paras. 12 and 13). Thus, while the present chapter refers generally to the needs of States, the needs that have been identified are primarily those of developing countries, in particular least developed countries and small island developing States.

35. As capacity-building is cross-cutting in nature, several needs are relevant to more than one area or sector of oceans and the law of the sea. Needs that are specific to a particular area or sector are also highlighted. A separate section is included to describe the specific needs of States in marine science.

36. *Capacity for the implementation of international conventions, including the United Nations Convention on the Law of the Sea.* The capacity of States needs to be enhanced with regard to, inter alia, the implementation of the requirements of international conventions at the national level, the development of regulatory frameworks and national ocean development and marine policies and improving reporting mechanisms.[27] Capacity is also required to undertake a periodic review of the adequacy of policies and legislation and their implementation in order to understand to what extent legislation has achieved its objectives, and to ensure its continued effectiveness.[28]

37. At the 2006 Review Conference on the United Nations Fish Stocks Agreement, a number of developing States stressed the need to enhance assistance to developing States parties in order to enable them to implement the Agreement to the fullest extent possible (see A/CONF.210/2006/19, para. 46).

38. The International Maritime Organization (IMO) recalled that, in a recent resolution (resolution A.998(25) of 29 November 2007), the IMO Assembly had highlighted the need for capacity-building for the development and implementation of new, and amendments to existing, instruments. It also noted that States required assistance and resources to participate in maritime security instruments and to adopt the measures to effectively implement the provisions of such instruments.

39. In past reports, the Secretary-General of the United Nations has observed that States require a legal framework and judicial capacity to effectively punish those guilty of committing crimes at sea (see A/63/63, paras. 133-137).

40. The International Labour Organization (ILO) reported that capacity-building was required in connection with the implementation of other labour standards for seafarers and fishers. For example, there was a lack of capacity and resources for the ratification and implementation by flag States of the 2006 Maritime Labour Convention, particularly in connection with establishing the mandatory labour inspection and certification scheme. There was also an urgent need to develop guidance and build capacity with respect to the social protection requirements in the

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[27] For example, the South Asia Cooperative Environment Programme observed the need to improve reporting mechanisms for conventions, such as the International Convention for the Prevention of Pollution from Ships (1973), as modified by the Protocol of 1978 relating thereto, in respect of oil spillage.

[28] Contribution of the secretariat of the Convention on Biological Diversity. Recently, the General Assembly, in resolution 64/72, para. 140, encouraged States to provide technical and financial support to developing countries to address their special requirements and challenges in implementing the 2008 International Guidelines for the Management of Deep-sea Fisheries in the High Seas of the Food and Agriculture Organization of the United Nations.

Convention, including social security; medical care, including liability of ship owners for illness and injury; and occupational safety and health.

41. The secretariat of the Convention on Biological Diversity reported that the assessment of the implementation of its programme of work on marine and coastal biological diversity (see para. 33 above) highlighted numerous challenges and obstacles to implementation, including those related to capacity-building and marine science. These challenges are outlined in the relevant sections below.

42. The South Asia Cooperative Environment Programme pointed to the need for assistance to countries of the Asia-Pacific region in the review of multilateral agreements related to the marine environment in order to recommend steps towards the adoption of national legislation to facilitate the effective implementation of the relevant instruments.

43. *Cross-sectoral, multi-level coordination.* There is a general need for capacity-building to enhance the effective implementation of integrated coastal management and ecosystem approaches to ocean management.[29] Capacity-building should address both legal and institutional aspects in order to facilitate, inter alia, the development of a coordination mechanism involving all relevant stakeholders from all sectors and agreement on a common vision and actions to address issues of common concern. There is a need to provide relevant assistance to States to facilitate enhanced coordination between levels of Government, with an emphasis on local implementation. As with sectoral coordination, this requires assistance in the establishment of a coordinating mechanism or process to ensure the harmonized implementation of policies and the flow of information between levels of Government.

44. The secretariat of the Convention on Biological Diversity stressed the need to develop and strengthen stakeholder networks in order to ensure that timely information was received to inform the decision-making process as efficiently as possible. It also referred to the need to create awareness and understanding among industry of the ecosystem approach, marine biodiversity and marine spatial planning; develop regional ocean business councils; and strengthen efforts to create a global cross-sectoral industry alliance to constructively engage in United Nations and other international processes relevant to oceans, through organizations such as the World Ocean Council.

45. In the context of fisheries, the Food and Agriculture Organization of the United Nations (FAO) noted a need to assist States in the application of the ecosystem approach to fisheries and aquaculture.[30] The secretariat of the Convention on Biological Diversity pointed to the need for capacity-building among national agencies that have shared responsibilities for marine resources in order to raise awareness of each other's roles and to facilitate a coordinated understanding in the implementation of relevant policies.

46. *Data accessibility.* Major obstacles that need to be addressed through capacity-building include inadequate data collection, analysis and management systems with inadequate standardization and the limited use of existing scientific and traditional

[29] This was also noted by the United Nations Environment Programme in its contribution.

[30] This was noted by the Food and Agriculture Organization of the United Nations with specific regard to the Asia-Pacific region.

knowledge. In addition, States require assistance in the compilation and analysis of scientific information to meet management needs (see also para. 89 below).[31]

47. The Pacific Islands Applied Geoscience Commission stressed the need for support in the collection, sharing and dissemination of physical, chemical and biological data, including baseline data and high-resolution topographic information. The Institute of Advanced Studies of the United Nations University (UNU) referred to the need for support to States in documenting native knowledge and expertise in sustainable resource management and climate change adaptation available in coastal communities. The secretariat of the Convention on Biological Diversity observed that marine spatial planning and ecoregional planning required spatial data sets about ecosystems, species and human uses, which in turn required specialized skills and software.

48. *Infrastructure, technology and equipment.* There is a general need for cooperation and assistance in the development of infrastructure, the acquisition of new technologies and the production of cost-effective and environmentally friendly equipment for the use of ocean resources, as well as their conservation and management.

49. In the area of maritime safety, capacity-building is needed, for example in the development and improvement of hydrographic services, including the transition to electronic nautical charts, and the enhancement of other technologies and capacities (see A/64/66, para. 155). Furthermore, developing coastal States, particularly in Africa, require assistance to develop an adequate search and rescue infrastructure.[32]

50. States face substantial challenges in developing their capacity to improve maritime security. In order to effectively deter, prevent and suppress threats to maritime security, States require strong infrastructures and up-to-date knowledge, technology, equipment and training, as well as substantial financial, technical and human resources.

51. *Ocean mapping, maritime delimitation and delineation.* As a result of the various technical specifications of the United Nations Convention on the Law of the Sea (a) regarding baselines and the delimitation of maritime areas to be reflected on charts or defined by a list of coordinates referenced to a specific datum and (b) that the low-water line and/or system of straight baselines should be used to establish baselines, technical assistance continues to be sought with regard to hydrographic data and nautical charting, geologic data relating to sediment thickness and bathymetric data (see A/45/712). The acquisition of new technologies continues to elude many States, particularly in view of limited financial resources.

52. The need for technical capacity within States for the delimitation and delineation of maritime spaces is still paramount. In relation to the Commission on the Limits of the Continental Shelf, many States that have provided preliminary information indicative of the outer limits of their continental shelves beyond 200 nautical miles were in the process of completing a submission in accordance with article 76 of the United Nations Convention on the Law of the Sea and the scientific and technical guidelines of the Commission. Many other States for which the timeline to make a submission has not yet passed are also in the process of

[31] This was also noted by the secretariat of the Convention on Biological Diversity in its contribution.

[32] Contribution of the International Maritime Organization.

completing a submission. Most developing States require the continuation of capacity-building. These States might particularly be in need of specialized expertise in geodesy, hydrography or geology, and require assistance in surveying and the collection of data, for which there is currently no trust-fund financial support. Likewise, the delineation and delimitation of other maritime spaces require technical, including hydrographic and geodetic, capacity, which many States are lacking.

53. *Human resources development*. Major obstacles that need to be addressed in all sectors generally include inadequate and poorly qualified staff, lack of incentives for dedicated staff, non-continuity of trained personnel and turnover of staff and lack of capacity to enforce existing laws and regulations. Additionally, there is insufficient training in the use of guidelines and tools and inadequate dissemination of such materials (see A/45/712).[33]

54. The secretariat of the Convention on Biological Diversity noted the lack of simple, easily understandable methods and guidance in local languages, the lack of training in and information on economic evaluation of biodiversity and marine and coastal protected areas and the lack of training in fund-raising, geographic information systems and mapping. It also identified additional training needs, including for the selection and use of ecological and social indicators and methods for ecological, social and economic assessment and monitoring; methodologies for selecting sites of marine and coastal protected areas and developing networks; economic valuation; training for communities on legislative and policy frameworks; the use of interdisciplinary methodologies for conservation planning; and training for communities on the importance of marine and coastal biodiversity and marine protected areas, as well as community-based monitoring methods.[34]

55. The United Nations Environment Programme (UNEP) emphasized that enhanced training for customs officials was crucial with regard to waste management (see UNEP/CHW/OEWG/6/29, para. 24). The International Maritime Organization referred to the need for capacity-building in training seafarers, in the form of support for education and training centres of excellence (see also para. 40 above).

56. *Financial resource needs*. Lack of financial resources is one of the most common impediments to capacity-building. There is a general need to induce domestic investment and mobilize external resources and international assistance. The South Asia Cooperative Environment Programme noted the need for sufficient funding support to address capacity-building needs in such areas as biodiversity, fisheries and shipping.

57. The lack of adequate financial resources is also a major impediment to capacity for the implementation of national programmes. In this regard, the secretariat of the Convention on Biological Diversity pointed out that there was a need for improved and forward-looking financial planning, fund-raising and

[33] This was also noted in most contributions to the present report.

[34] The secretariat of the Convention on Biological Diversity also observed that managing multiple human uses in large ocean areas required sophisticated tools and methods, including ecosystem models, and the ability to combine information relating to ecosystems, threats and human activities, which created an increasing demand for training, both in regard to short, targeted courses and longer-term career development, as well as technical assistance and the sharing of resources in deep-sea research.

business planning skills; ways and means of making marine protected areas and networks financially self-sustaining; improved funding for research to support management; and additional donor funding, including small grants.

58. According to the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (UNESCO), there is a need for increased and sustained funding to support adaptation for coastal and island communities. Current estimates of adaptation costs were woefully inadequate (see also paras. 75-77 below).

59. *Capacity for enforcement.* The secretariat of the Convention on Biological Diversity expressed the view that laws were often rendered ineffective by the lack of capacity for enforcement. Ineffective or inadequate surveillance and enforcement capacities were a common challenge for many States, whether flag, port or coastal States.[35] Proper enforcement requires advanced training, technological awareness and capacity, sufficient human resources and adequate equipment.

Conservation and management and sustainable development of ocean resources

60. The needs of States with regard to marine living resources, marine non-living resources and marine biological diversity are presented in paragraphs 61 to 69 below.

61. *Marine living resources.* The fisheries management process usually entails three primary activities: fisheries policy and development planning, the formulation of management plans and strategy and management implementation.[36] Fisheries would thus need professionals at all stages of the management process, from the managers who are able to translate scientific advice into informed decision-making and develop sound conservation and management measures for the fishery, to the professionals who have an understanding of the state, trends, structure and social and economic dynamics of the fishery sector and of the markets in which it trades.

62. Accordingly, developing States may need assistance in many areas of fisheries conservation and management, such as the development and strengthening of domestic regulatory fisheries policies, including policy guidelines for the conservation of straddling fish stocks or highly migratory fish stocks, and fisheries legislation. They may also require assistance, inter alia, in the preparation of fisheries management plans, the implementation of a modern approach to fisheries management, the development of artificial reefs and fish-releasing programmes to enhance wild stocks, the management and monitoring of marine protected areas for fish nurseries and better utilization of by-catches.

63. Additionally, States may need assistance in strengthening national vessel registries and inter-agency coordination and in the establishment of regional monitoring, control and surveillance networks. States require the training of personnel in their fisheries ministries, as well as of boat skippers and fishing

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[35] This was also noted by the secretariat of the Convention on Biological Diversity in its contribution. The secretariat further noted the need for resources to patrol extensive coastal areas and for the enforcement of regulations in respect of vessels in areas beyond the limits of national jurisdiction.

[36] See *Fisheries Management: Food and Agriculture Organization of the United Nations (FAO) Technical Guidelines for Responsible Fisheries 4* (Rome, Food and Agriculture Organization, 2003).

masters; the strengthening of monitoring, control, surveillance and enforcement capabilities; training in the operation of maritime monitoring vessels and the use of maritime monitoring systems; port-State control; and compliance with international standards for seafood quality and safety and the traceability of fish and fish products. Financial assistance is also needed to allow participation in the meetings of regional fisheries management organizations or arrangements. Capacity-building is also required to assess the impact of climate change on fisheries resources (see also paras. 76 and 77 below).[37]

64. Particular attention should be given to the needs of small-scale fisheries and artisanal fisheries in developing countries, in view of their important contribution to employment, poverty alleviation, income and food security. Small-scale fishers require assistance in the empowerment of fishing communities under the growing regime of co-management systems by informing fishers of the full extent of their rights and responsibilities, and by providing them with capacity-building and training programmes designed to enable them to exercise their rights and obligations under the system.[38]

65. *Marine non-living resources*. Technical assistance and further development of the expertise and technology needed to exploit marine non-living resources in areas within and beyond the limits of national jurisdiction are required. There is a specific need for inventories of resources; geological and geophysical data on the continental shelf; prospecting and exploration; the drilling of boreholes; assistance in developing marine minerals, hydrocarbons and natural gas; and the elaboration of the rights and duties of coastal States and foreign investors. In its contribution, the Pacific Islands Applied Geoscience Commission recognized that Pacific island countries needed to develop national and regional legislative, fiscal and environmental policies and guidelines to provide an operational framework to protect the interests of all stakeholders with regard to offshore mining activities.

66. *Marine biological diversity*. Agenda 21, in particular in chapter 16, recognizes the importance of investment in biotechnology capacity-building. The need to help States build sufficient human resources, regulatory capacity, research funding and governance institutions to enable their participation in biotechnology has also been recognized.[39] The United Nations Conference on Trade and Development notes that biotechnology activities in several developing countries have not yet reached the level of advanced technology, such as genetic engineering and genomics.[40] It also notes that most developing countries are still in the early stages of technological learning, in which access to patented technologies is essential for industrial development.[39]

67. As regards biodiversity beyond areas of national jurisdiction, the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national

[37] See the compilation prepared by the secretariat (ICSP8/UNFSA/INF.4/Rev).

[38] See Food and Agriculture Organization of the United Nations, "Making global governance work for small-scale fisheries", New directions in fisheries, a series of policy briefs on development issues, No. 9 (Rome, 2007).

[39] See United Nations Conference on Trade and Development, "The biotechnology promise: capacity-building for participation of developing countries in the bioeconomy (New York and Geneva, United Nations, 2004).

[40] Ibid.; see also A/62/66/Add.2, paras. 244-245.

jurisdiction identified a need for increased capacity-building programmes, through training, sharing of data and information, deep-sea scientific research and the transfer of technology, in order to support States in the management, sustainable use and conservation of resources and biodiversity. The Working Group also noted a need to improve the capacity of States to implement legal instruments and enforce their provisions, and to enhance their capacity to mitigate and adapt to the impact of a number of anthropogenic activities.[41]

68. The secretariat of the Convention on Biological Diversity highlighted the need for a collaborative international effort to identify areas of global ecological and biological significance in areas beyond the limits of national jurisdiction, in accordance with international law, as reflected in the United Nations Convention on the Law of the Sea and using, as appropriate, the scientific criteria of the Convention on Biological Diversity.[42,43]

69. The South Asia Cooperative Environment Programme noted the need for national marine biodiversity assessments to use a common format.

70. *Other sustainable uses of the oceans*. Traditional uses of the oceans include communication, maritime transport, tourism and recreation, which can contribute significantly to the socio-economic development of States. In this regard, States require technology, equipment, training, and financial, technical and human resources in order to realize the benefits associated with the sustainable use of the oceans. For example, there are capacity needs with regard to the development or expansion of shipping and port services in the context of national development planning, port and harbour development and management, and the safe, efficient and economic conduct of marine transportation. Ensuring the safety of navigation requires, among other things, navigational aids, traffic separation schemes and the designation of sea lanes, the implementation of which requires technical assistance from experts and competent agencies and bodies. More generally, there is also a need for support in the adoption of measures for the protection of shorelines, including coastal erosion control projects. (See A/45/712, paras. 113-125.)

71. *Submarine cables*. A need has been expressed by some States, including in recent workshops, to consider gaps in the existing legal regime regarding submarine cables at the international and national levels, in particular in the implementation of article 113 of the United Nations Convention on the Law of the Sea. Views have been expressed that the current legal regime is not adequate with respect to the operation of, and threats to, submarine cables. In particular, a need for a code of best practices with regard to the laying and repair of submarine cables and the conduct of cable-routing surveys was mentioned, among other things.[44] In that context, a need for capacity-building activities facilitating the review of the legal regime and possible gaps therein could be considered.

72. *Environmental considerations*. Technical assistance is required to determine the origin, distribution, entry routes and volume at entry of the major pollutants,

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[41] See A/61/65, paras. 20 and 43, and A/63/79, paras. 11, 17, 35, 41 and 45.

[42] See decision IX/20, adopted by the Conference of the Parties of the Convention on Biological Diversity (UNEP/CBD/COP/9/29), annex I.

[43] Contribution of the Institute of Advanced Studies of UNU.

[44] See the report of the workshop on submarine cables and law of the sea, held in December 2009 in Singapore, executive summary, paras. 3, 6 and 7, available from http://cil.nus.edu.sg/. The workshop followed on from another workshop, held in May 2009 in Beijing.

including marine debris, of coastal waters, as well as to formulate and implement marine environmental protection standards and to conduct environmental impact assessments.[45] Capacity to conduct further research on the effects of marine pollution on human health and aquatic resources, in order to formulate policies and contingency plans, as well as expertise on regulating the storage and distribution of toxic waste, are also very important.[46]

73. Addressing pollution from land-based sources raises particular challenges for developing States, owing to the wide variety of possible pollutants and the fact that much of the pollution originates from non-point sources. Scientific knowledge must therefore be coupled with an understanding of modern approaches to integrated coastal management, as well as policy perspectives on how to mainstream marine and coastal issues into national development frameworks (see A/63/63/Add.1, paras. 167-168). There is a need for greater assistance to States to put in place waste-management, monitoring and regulatory systems and, particularly, to control the illegal dumping and trafficking of waste.[47]

74. The Baltic Marine Environment Protection Commission observed the importance of monitoring and assessment capacity within regional conventions.

75. *Climate change and oceans*. The need for capacity-building to assist States in responding to climate change has long been recognized in the work of the United Nations Framework Convention on Climate Change, and several needs and activities have been identified as part of the regular monitoring of the implementation of the capacity-building framework for the Framework Convention (see http://unfccc.int).

76. With specific reference to the oceans, the General Assembly, in paragraph 114 of resolution 64/71, encouraged States to enhance their scientific activity to better understand the effects of climate change on the marine environment and marine biodiversity and develop ways and means of adaptation. Recent discussions during the 2009 East Asian Seas Congress in regard to adaptive strategies to climate change have emphasized the need for sufficient funding to support ecosystem-based adaptation strategies in coastal communities and island States that increase the resilience of key coastal and marine ecosystems, to be implemented through integrated coastal- and ocean-management institutions and processes at the local, national and regional levels.[48]

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[45] In its contribution, the United Nations Environment Programme pointed to the need for integrated environmental assessments; see also the contribution of the secretariat of the Convention on Biological Diversity.

[46] See A/64/66, para. 155, and section III.B.2. See also A/45/712, paras. 68-77 and A/46/722, paras. 118-133.

[47] Contribution of the United Nations Environment Programme.

[48] Contribution of the Intergovernmental Oceanographic Commission of UNESCO. The third Ministerial Forum of the 2009 East Asian Seas Congress highlighted the need for the region to look into the serious impacts of climate change and the region's sustainable development. The meeting culminated in the signing of the Manila Declaration on Strengthening the Implementation of Integrated Coastal Management for Sustainable Development and Climate Change Adaptation in the Seas of the East Asia Region, which confirmed the commitment of the country partners of the Partnerships in Environmental Management for the Seas of East Asia to scale up integrated coastal management programmes for sustainable development and climate change adaptation, targeting 20 per cent coverage of the region's coastline by 2015 (see the contribution of the Partnerships in Environmental Management for the Seas of East Asia).

77. While most of the needs identified and outlined in the present section apply generally to developing States, small island developing States have special adaptive and mitigation needs, owing to their particular vulnerability, especially in the face of climate change (see para. 90 below).[49]

78. *International cooperation*. The United Nations Convention on the Law of the Sea accords international cooperation the highest importance, by requiring States to cooperate in the management of the oceans at the global, regional and subregional levels. To that end, there is also a continued need to assist developing countries in participating in intergovernmental meetings (see also para. 276 below).[50]

79. Assistance and advice to States to strengthen and augment the existing level of cooperation in a number of subregions or regions, including within the context of the UNEP Regional Seas Programme, need to be sustained. The secretariat of the Convention on Biological Diversity noted that regional coordination between neighbouring countries was vital in areas with strong ecosystem connections and/or shared species.

B. Needs of States in marine science

80. Marine science is an essential underpinning for the sustainable management of the oceans and their resources and mitigation of, and adaptation to, natural disasters and extreme events. Marine science and its supporting technologies, through improving knowledge and applying it to management and decision-making, can make a major contribution to eliminating poverty; ensuring food security; supporting human economic activity; conserving the world's marine environment; helping to predict, mitigate the effects of and respond to natural events and disasters; and generally promoting the use of the oceans and their resources for the objective of sustainable development (see A/56/121, para. 3). Marine science plays an important role in the fisheries management process, as managers require the best available scientific information to assist them in making decisions to ensure the long-term sustainable use of fishery resources, including the adoption of conservation and management measures that could maintain or restore stocks at levels capable of producing maximum sustainable yields, as qualified by environmental and economic factors.[51] The effectiveness of fisheries management is dependent on the extent to which it is informed by an accurate understanding of the status, trends and cause-effect relationships in the abundance, dynamics and resilience of fisheries resources, and the environment in which they are found.

81. Effective marine science does not consist simply of a series of one-time projects; rather, sustained efforts are needed to monitor and understand the development of the highly dynamic marine environment and to apply that knowledge to prediction and to management decisions. Without place-based participative processes engaging Governments and stakeholders in understanding

[49] Contribution of the Pacific Islands Applied Geoscience Commission.

[50] For example, the importance of the participation of developing countries, in particular least developed countries, small island developing States and landlocked States, was emphasized at the first, third and sixth meetings of the Consultative Process. See A/64/66, para. 193.

[51] See the United Nations Convention on the Law of the Sea, article 61, paras. 2 and 3, and article 119, para. 2; the United Nations Fish Stocks Agreement, articles 5 (a) and (b); and the Food and Agriculture Organization Code of Conduct for Responsible Fisheries, article 7.2.1.

what is needed for integrated management and building capacity to actually implement it, marine science has often remained confined to the science community, or has not been embraced in policymaking. In addition, many developing countries still lack the capacity, in terms of trained personnel, equipment and infrastructure, to perform the basic research required for the development of the best scientific information to support sound decision-making. Bearing in mind the importance of marine science, it is therefore essential to build capacity, in particular in developing countries, to conduct marine scientific research.

82. Part XIII of the United Nations Convention on the Law of the Sea on marine scientific research, and part XIV on the development and transfer of marine technology, reflect the importance of the need for capacity-building in marine science, related knowledge and expertise, as well as marine infrastructure (see also para. 8 above and para. 96 below).

83. The present section highlights some of the needs of States in marine science, including in relation to fisheries. It builds upon some of the relevant information provided in the two reports of the Secretary-General referred to in paragraph 4, on the needs of States and measures undertaken in response to those needs and approaches for further actions. Reference is also made to the report of the Consultative Process on its second meeting (A/56/121), as well as to other reports of the Secretary-General on oceans and the law of the sea.[52]

84. *Development of skills*. The basis for various maritime industries is a strong marine science and technology capability,[53] and the development of human resources is essential to ensure a better understanding of marine science and technology and their potential (see A/56/121, para. 25). States need to have not only full-time researchers but also technical support staff who service the equipment, computers and ships. The challenge remains in improving the skills and the knowledge base of academics, scientists, managers, field practitioners and local communities.[54]

85. The South Asia Cooperative Environment Programme underlined the continued need for education and training, including scholarships, fellowships and grants in basic marine science and in specialized fields, and field-level training programmes for managers on the conservation and management of coastal and marine resources. The Programme also noted the lack of well-trained taxonomists (see also General Assembly resolution 64/71, para. 145).

86. The Baltic Marine Environment Protection Commission noted the need for two-way capacity-building: capacity-building of science to focus on policy relevant issues, and capacity-building of decision-making and law-making processes to use scientific input in reaching decisions. The Commission also stressed the importance

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[52] See, in particular, A/56/58, prepared to facilitate discussions at the second meeting of the Consultative Process. All reports are available at: www.un.org/Depts/los/index.htm.

[53] See Aprilani Soegiarto and Jan Stel, "The Indonesian experience in marine capacity-building", *Marine Policy*, vol. 22, No. 3 (1998).

[54] Julie Church, Ali Mohamed and James Kamula, "Assessment of Africa's capacity-building needs for the development and implementation of ecosystem-based ocean governance: May-August 2007", prepared by the Coastal and Marine Programme of the New Partnership for Africa's Development for the Intergovernmental Oceanographic Commission of UNESCO as part of a project on "Fostering a global dialogue on oceans, coasts and small island developing States, and on freshwater-coastal-marine inter-linkages" .

of monitoring and assessment capacity within permanent regional marine convention structures.

87. *Development of national marine science, technology and ocean service infrastructure.* Most States and relevant organizations have established institutional infrastructures to carry out specific activities or programmes related to marine science, such as oceanographic institutes. They may be regional, national or international in scope and influence. Nevertheless, while many coastal developing countries have established institutes or centres for oceanography and/or marine scientific research, the undertaking of marine scientific research and the acquisition of marine data require large and expensive facilities, such as research ships, powerful computers and the sophisticated instruments required for sampling and monitoring the ocean. Infrastructure and other relevant networks for the servicing of research ships and other instruments, whether in ports or harbours, are often also needed.

88. *Technology transfer and technical assistance.* Developing States continue to express the need for the development of technology, its transfer and technical assistance as tools to enable them to collect, analyse, understand, use, organize and store data and information about the marine environment and its resources. Furthermore, most such States are inadequately equipped to deal with the environmental impact of marine development and other ocean uses.[55] In this connection, UNEP noted that a lack of adequate technical capacity in relation to marine science within developing countries participating in its Regional Seas Programme was a restricting factor for the implementation of programmes to monitor water and sediment quality.

89. *Acquisition of and access to marine data and information.* A challenge encountered by coastal States relates to the appropriate storage and handling of research results. Also, while data delivery and management systems have made marine scientific research data more readily available, the requisite technology to access and assess this data, samples and research results may not be available to coastal States. In Africa, for example, there has been an increase in marine programmes (see A/56/58, section VIII.B), as well as a growing number of academic and research institutions focusing on marine-related topics; however, information availability, skills and the knowledge base are still a little uneven.[54]

90. A major challenge in the Pacific islands marine sector is the critical lack of fundamental baseline data to support improved understanding of climate-related vulnerability. Not only is there a paucity of global circulation model outputs of adequate resolution to provide information on potential climate impact in the Pacific islands region, as noted by the Pacific Islands Applied Geoscience Commission, but there is also an immediate need to improve existing baseline data. Data such as high-resolution topographical information, which would provide the fundamental baseline for coastal vulnerability studies, wave impact and inundation modelling, is almost entirely absent; thus much of what is understood regarding coastal vulnerability in the Pacific islands region is inferred or based on inadequate baseline data.

91. Developing countries have expressed the need for the availability of data and information that are reliable and accessible through appropriate data centres, such as those of the International Oceanographic Data and Information Exchange of the Intergovernmental Oceanographic Commission of UNESCO and the International

[55] See, for example, A/45/712, A/57/80, A/61/65, A/63/79 and A/64/66/Add.2.

Council for Science. The need for reliability equally implies the need for quality assurances of the data produced from any marine scientific research project. Such data also needs to respond to the diversity of requirements of States.

92. *Marine science needs in fisheries management.* In response to a questionnaire circulated in 2008 by the Secretariat to developing States, various priorities for assistance in fisheries conservation and management were identified, including scientific research and stock assessment; assistance in the acquisition of fully equipped scientific vessels and scientific research equipment; the establishment of institutes for marine science; consulting assistance to set up national survey designs, sampling practices and data analysis; data collection, exchange and reporting, including the setting up of a data-collection facility and reporting system; and the establishment of joint working groups with neighbouring countries to analyse data for shared fishery resources. Several training needs have been identified, including training in research-vessel electronics and sonar techniques, in the use of software for data compilation and exchange and in data-collection techniques, as well as the training of local scientists in ecosystem studies and modelling, survey methodologies, ageing and fecundity studies. There is also a need to improve the communication of scientific information from scientists to policymakers.[56]

93. Application of new conservation approaches and tools, such as the precautionary approach,[57] ecosystem approaches and area-based management,[58] are also science-based and require reference to, inter alia, biological, ecological, economic and social indicators for their implementation. For management using ecosystem approaches, the following information is of fundamental importance: adequate data on by-catch and species belonging to the same ecosystem or associated with or dependent upon the target species, and indicators of ecosystem changes.[59] Application of the precautionary reference points in the conservation and management of straddling fish stocks and highly migratory fish stocks, as provided under annex II to the United Nations Fish Stocks Agreement, also requires the use of agreed scientific procedures. In addition, biological information for target species, as well as physical information about bathymetry, habitat and hydrodynamics, are essential for the establishment and effectiveness of marine protected areas.[60] Scientific support is also needed to investigate the impact of climate change on fishery resources and those who depend on them, and to identify analytical techniques to reliably forecast such impact, including methods for quantifying the uncertainty in fisheries policy and management. One reason for the failure of fisheries management includes, inter alia, limited knowledge of the bio-ecological and socio-economic processes involved in fisheries.[61]

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[56] See ICSP8/UNFSA/INF.4/Rev (see footnote 37).

[57] *Precautionary Approach to Capture Fisheries and Species Introduction, Food and Agriculture Organization of the United Nations: Technical Guidelines for Responsible Fisheries 2* (Rome, 1996).

[58] See *Fisheries Management* (footnote 36).

[59] See Joji Morishita, "What is the ecosystem approach for fisheries management?", *Marine Policy*, vol. 32 (2008), available from www.sciencedirect.com.

[60] See Peter Sale and others, "Critical science gaps impede use of no-take fishery reserves", *Trends in Ecology and Evolution*, vol. 20, No. 2 (2005), available from www.sciencedirect.com.

[61] See S. M. Garcia, "The precautionary approach to fisheries: progress review and main issues (1995-2000)", in *Current Fisheries Issues and the Food and Agriculture Organization of the United Nations*, Myron Nordquist and John Norton Moore, eds. (The Hague, Kluwer Law International, 2000).

94. *Marine science and biodiversity*. The secretariat of the Convention on Biological Diversity identified the following problems relating to the capacity of States to implement its marine and coastal programme of work: poor data collection and analysis, with a lack of standardization; little understanding or documentation of biodiversity loss; limited use of existing scientific and traditional knowledge; limited capacity to research and monitor remote oceanic locations; and, in the deep ocean, poor understanding of biodiversity (see also para. 68 above). Furthermore, the need to make scientific information and traditional knowledge easier to access through improved information management was identified, as was the need to enhance regional collaboration to address scientific information needs; to further develop spatial approaches to data management; to build international scientific expertise and processes for assessing and managing poorly known ocean areas, such as the deep sea; and to provide information about the status of marine biodiversity globally, as well as management options.

IV. Means of implementation of capacity-building activities and initiatives

95. No comprehensive inventory exists of the current capacity-building activities and initiatives of States, relevant intergovernmental organizations, industry, non-governmental organizations and other stakeholders in the field of oceans and the law of the sea, and the information is not otherwise readily available. Therefore, the information in the present chapter cannot be considered exhaustive. It is mainly drawn from the inputs provided by the intergovernmental organizations that contributed to the present report.

A. Capacity-building activities and initiatives in marine science

96. Parts XIII and XIV of the United Nations Convention on the Law of the Sea reflect the importance of marine science, related knowledge and expertise and marine infrastructure, as well as the need for capacity-building in those areas (see also para. 8 above). Chapter 17 of Agenda 21 calls on States, individually or through bilateral and multilateral cooperation and with the support, as appropriate, of international organizations, whether subregional, regional or global, to develop and implement comprehensive programmes, particularly in developing countries, to meet their core human resource needs in the marine sciences. The Johannesburg Plan of Implementation also emphasizes the need to build capacity in marine science, information and management through, inter alia, promoting the use of environmental impact assessments and environmental evaluation and reporting techniques (see also para. 11 above). Furthermore, the General Assembly has consistently called upon States and international financial institutions, including through bilateral, regional and global cooperation programmes and technical partnerships, to continue to strengthen capacity-building activities in the field of marine scientific research by, inter alia, training personnel to develop and enhance relevant expertise, providing the necessary equipment, facilities and vessels and transferring environmentally sound technologies.[62]

[62] See, for example, General Assembly resolutions 64/71, para. 11; 63/111, para. 11; 62/215, para. 12; and 61/222, para. 11.

97. General programmes for capacity-building in marine science may include the following: developing the necessary skilled personnel, both by encouraging individuals to engage in marine science and by providing the necessary training and experience, including through acting as observers under article 249 of the United Nations Convention on the Law of the Sea; providing the necessary equipment, facilities and vessels, together with the essential infrastructure; ensuring the development of the necessary skills and techniques, both for the efficient and effective use of equipment and for implementing part XIII of the Convention, as well as for interpreting scientific results and for their publication and dissemination; and transferring environmentally sound technologies, in accordance with part XIV of the Convention and Agenda 21, together with the provision to developing countries of financial and technical assistance for this purpose.[62]

98. The adoption of a marine science and technology strategy at the national level may improve the development of capacity in those areas. In this regard, a few States have developed marine policies which encompass marine science and technology plans and/or strategies for the building of human and technical capacity in the area of ocean affairs and the law of the sea (see http://ioc3.unesco.org/abelos). A number of developing countries have also established specific infrastructures regarding marine science and technology, although they are at different levels of development.[63]

99. The present section provides information on the current activities of a number of global and regional intergovernmental organizations, programmes and processes for building capacity to conduct marine scientific research, transfer technology, collect samples and exchange data and information. Information is also provided on activities in marine science which specifically relate to fisheries, the marine environment and biodiversity, as well as climate change.

100. *Marine scientific research*. The United Nations Educational, Scientific and Cultural Organization, through the Intergovernmental Oceanographic Commission, is the recognized competent international organization in the fields of marine scientific research and transfer of marine technology under the United Nations Convention on the Law of the Sea. In accordance with its statutes, the purpose of the Intergovernmental Oceanographic Commission is to promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment and the decision-making processes of its member States. The Commission has developed a number of programmes in marine science and technology, with a view to empowering developing countries to sustainably use their coastal and marine resources, thus assisting them in the implementation of parts XIII and XIV of the Convention (see A/56/58).

[63] Examples of such initiatives at the national level can be found in the reports of the Global Forum on Oceans, Coasts and Islands on "Capacity-building assessments in small island developing States in the Pacific, Caribbean, Indian Ocean, the Atlantic and the community of Portuguese-speaking countries" (2006) and the "Evaluation of capacity-building needs at the regional level for the development and instrumentation of ecosystem-based national ocean policies among developing countries and those with transition economies in Latin America" (2007), as well as in "Assessment of Africa's capacity-building needs" (see footnote 121).

101. Through its education and mutual assistance and training through research programmes, the Commission provides in-country training for developing countries seeking capacity-building in addressing national priorities. The Commission reported that it had coordinated regional leadership, proposal-writing and team-building workshops in the eastern Atlantic and western Indian Ocean regions. In that context, institutional capacity to address coastal management was prioritized, including action to address emerging issues such as climate change. Training was also organized on the development and use of decision-support tools, such as models, in supporting coastal management (see www.ioc-cd.org). In the context of its work on the practice of member States of the Intergovernmental Oceanographic Commission concerning the application of parts XIII and XIV of the Convention, the Commission's Advisory Body of Experts in the Law of the Sea agreed to offer assistance to member States and to develop cooperation among member States for marine scientific research projects, with particular attention to capacity-building.

102. The United Nations Industrial Development Organization (UNIDO) is also promoting marine scientific research through its support to the regional activity centre on marine productivity established at the University of Ghana, Legon, and through technical assistance and the facilitation of transboundary research.

103. In the light of the recognition by the General Assembly of the need for capacity-building to carry out marine scientific research (see paras. 7 and 96 above), the Division for Ocean Affairs and the Law of the Sea, pursuant to its mandate (see para. 124 below), prepared, with the assistance of a group of experts, a revision of the 1991 publication *Marine Scientific Research: a Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea*. The revised guide advises States of the means by which the articles of the Convention could be implemented by coastal and researching States, with a focus on the implementation of the Convention's core provisions on marine scientific research, particularly the consent procedure. Part III of the guide identifies some best practices and provides some practical guidance for the implementation of the relevant provisions of the Convention. The annexes include standard forms to facilitate the process of granting consent for marine scientific research projects. The revised guide is expected to be released as a United Nations publication later this year.

104. With regard to marine scientific research in the Area, the International Seabed Authority has addressed capacity-building primarily through the establishment of the International Seabed Authority Endowment Fund for Marine Scientific Research in the Area, which supports the participation of qualified scientists and technical personnel from developing countries in international cooperative marine scientific research programmes. The Fund has facilitated the development of capacity through training and technical assistance. To date, the Fund has supported the participation of 16 developing country scientists in international training and research programmes.[64]

105. *Transfer of technology.* The annual reports of the Secretary-General on oceans and the law of the sea include details on recent developments in marine technology, which tend to be at the leading edge of technological development. They also report

[64] The Fund was established through a resolution of the Assembly of the International Seabed Authority on 16 August 2006 (see ISBA/12/A/11). For further details regarding the Fund, see www.isa.org.jm.

on the transfer of information and data covering a wide range of ocean issues through databases and geographic information systems, many of which are online. Information on the practice of States regarding the transfer of equipment, instruments and vessels is not available, however.

106. In 2003, the Assembly of the Intergovernmental Oceanographic Commission adopted criteria and guidelines on the transfer of marine technology. The guiding principle of the criteria and guidelines is that the transfer of marine technology must always be conducted based on fair and reasonable terms and conditions and should enable all parties concerned to benefit on an equitable basis from developments in marine-science-related activities, particularly those aimed at stimulating the social and economic contexts in developing countries.[65] The Commission has also developed a clearing-house mechanism to assist interested developing and developed countries that are seeking appropriate partnerships for technology transfer.

107. *Data and information exchange*. The availability of knowledge derived from marine scientific research and monitoring to those who need it, in particular developing countries, continues to be essential.[66] The Intergovernmental Oceanographic Commission's International Oceanographic Data and Information Exchange facilitates the exchange of oceanographic data and information between participating member States, and meets the needs of users for data and information products. In that context, the Exchange plays a leading role in capacity-building, in particular through its ocean data and information networks, the OceanTeacher and OceanTeacher Academy project and the training programme organized at the Intergovernmental Oceanographic Commission project office for the Exchange in Oostende, Belgium. In Africa, the Exchange has contributed to the development of a network of national oceanographic data and information centres, providing access to data and information required for coastal management; the African Marine Atlas, which shows areas of intense use along the African coastline that require careful management; the African community of the OceanDocs electronic repository, which provides access to over 1,000 full-text papers written by African marine experts; and a sea-level network, with more than 40 operational tide gauges along the African coast. Training courses have been organized on data and information management, sea-level data analysis, modelling, marine biodiversity and the application of remote sensing to coastal management. Online Access to Research in the Environment, an international public-private consortium coordinated by UNEP, Yale University and leading science and technology publishers, also enables developing countries to gain access to research on environmental science.

108. At the regional level, the South Asia Cooperative Environment Programme, together with partners, organized, in September 2009 in India, a training workshop on the sampling, data collection and interpretation of marine resources for the South Asian Seas.[67] The "ocean and islands" programme of the Pacific Islands Applied

[65] The Intergovernmental Oceanographic Commission reported that, in 2006, the Government of Argentina submitted its application under the criteria and guidelines on the transfer of marine technology for an oceanographic tow winch with particular specifications to be installed on its icebreaker *Almirante Irizar*. This application was publicized on the web page of the Advisory Body of Experts in the Law of the Sea, but no further information on the outcome of the request is available.

[66] See A/56/121 and A/64/66/Add.1.

[67] The Division for Ocean Affairs and the Law of the Sea contributed to this activity.

Geoscience Commission provides support to Pacific island countries in the areas of hydrographic, marine and coastal science and the provision of baseline information to support sustainable development, improved decision-making, resource use solutions and vulnerability assessment in coastal and marine environments. In that context, the programme provides hands-on training during hydrographic, geological, geophysical and vulnerability surveys. Regional workshops on data awareness and use have also been organized.

109. *Assessments* are important to better understand the status of, and trends in, the condition of marine ecosystems. In particular, assessments help gauge the vulnerability, resilience and adaptability of various ecosystems. Assessments also contribute to a better understanding of the manner and the extent to which human activities have an impact on ecosystems, and thus help identify, control and, where possible, avoid environmental risks. Scientific assessments are therefore crucial to developing appropriate responses, at all levels, by assisting States in establishing priorities for management interventions.

110. At its meeting in August 2009, the General Assembly Ad Hoc Working Group of the Whole established pursuant to Assembly resolution 63/111 agreed in its recommendations that the regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects would promote, facilitate and ensure capacity-building and transfer of technology, including marine technology, in accordance with international law, including the United Nations Convention on the Law of the Sea and other applicable international instruments and initiatives, for developing and other States, taking into account the criteria and guidelines on the transfer of marine technology of the Intergovernmental Oceanographic Commission. The regular process would promote technical cooperation, including South-South cooperation. States and global and regional organizations would be invited to cooperate with each other to identify gaps and shared priorities as a basis for developing a coherent programme to support capacity-building in marine monitoring and assessment. Through the regular process, opportunities for capacity-building would be identified, in particular on the basis of existing capacity-building arrangements and the identified capacity-building priorities, needs and requests of developing countries. States and relevant international organizations, bodies and institutions would be invited to cooperate in building the capacity of developing countries in marine science, monitoring and assessment, including through workshops, training programmes and materials and fellowships (see A/64/347). At its sixty-fourth session, the General Assembly endorsed the recommendations of the Working Group and requested the Secretary-General to establish a trust fund to: (a) support the first five-year cycle of operations of the regular process; (b) provide assistance to members of the group of experts established by the General Assembly from developing countries attending the meeting of the Ad Hoc Working Group of the Whole in 2010; and (c) for the special scholarship fund to support training programmes for developing countries (see General Assembly resolution 64/71, paras. 180 and 183). The trust fund has been established, and Iceland has made a contribution of $30,000.

111. The United Nations Environment Programme, with partners, is executing and implementing the GEF Transboundary Waters Assessment Programme, which is aimed at developing assessment methodologies for the status and changing conditions in transboundary water systems: transboundary groundwater systems, transboundary lake and reservoir systems, transboundary river systems, large marine

ecosystems and open ocean areas. This methodology, when developed for the oceans, has the potential to be used in the context of the regular process. Among the constraints to effective management of transboundary waters is the lack of a systematic and scientifically robust methodology for assessing the changing conditions of these bodies of water, which would allow policymakers, GEF and international organizations to set science-based priorities for financial resource allocation.[68]

112. *Fisheries*. The Food and Agriculture Organization of the United Nations has conducted training workshops aimed at the implementation of the FAO strategy for improving information on status and trends in capture fisheries; the generation and use of fishery statistics and information through the FishCode-STF project; assessment and monitoring of fishery resources and ecosystems in the Strait of Sicily, including a review of knowledge and collection of scientific evidence on shared stocks; and support to fisheries management in the western and central Mediterranean, including collection of data and information at the national and subregional levels. FAO has provided technical assistance and training to strengthen national capacity in fisheries sciences and to strengthen the knowledge base for the implementation of the ecosystem approach to fisheries in developing countries, including procedures and methods for assessing and monitoring key ecosystem properties. The UNDP/GEF Pacific islands oceanic fisheries management project has one component aimed at providing improved scientific information and knowledge to small island developing States on oceanic transboundary fish stocks and related ecosystem aspects of the western tropical Pacific warm pool large marine ecosystem, including strengthening national capacities in these areas.[69]

113. At the regional level, the International Commission for the Conservation of Atlantic Tunas and the secretariat of the Pacific Community have organized scientific training activities for the benefit of developing country members of their respective organizations. The International Commission conducted training workshops on data collection and improvement in the Caribbean region (Guyana, 2009) and on parameter estimation and basic stock assessment modelling in the Mediterranean region (Morocco, 2009). It also provides financial assistance to scientists from developing coastal States to participate in intersessional scientific meetings and the meetings of the Standing Committee on Research and Statistics, and jointly managed with the FAO FishCode-STF project, which is a programme on stock assessments, data collection and information systems. In 2009 the secretariat of the Pacific Community conducted a workshop training for scientific technicians of small island developing States of the Pacific region on algal sampling procedures, as well as a tuna data workshop (April 2010) and tuna stock assessment, ecosystems and by-catch workshops (June-July 2010) for small island developing States parties to the United Nations Fish Stocks Agreement. For examples of assistance provided by the North East Atlantic Fisheries Commission to the South East Atlantic Fisheries Organization,[70] see paragraph 281 below.

114. The European Union, Australia, Japan, New Zealand, Norway, the Russian Federation and the United States of America have provided training and capacity-

[68] The project document of the Global Environment Facility is available from http://ioc-unesco.org.

[69] See ICSP8/UNFSA/INF.4/Rev (see footnote 37).

[70] Members of the South East Atlantic Fisheries Organization include Angola, Namibia, the European Union and Norway.

building to developing countries in technical and scientific fields. Topics as training workshops included fisheries research; stock assessment; fisheries statistics; sustainable development of fisheries; environmental studies; data collection, handling and analysis; monitoring, control and surveillance; support for small-scale fisheries; sanitary conditions for fishery products; and fisheries-related studies. Assistance also involved institutional strengthening and technology transfer of mitigation devices for the protection of marine biodiversity.[69]

115. The Commission for the Conservation of Antarctic Marine Living Resources, in its contribution, reported that it had established a "general science capacity special fund". The purpose of the fund was to secure wider participation in the work of the Commission's Scientific Committee, to promote burden-sharing and build capacity within the Committee, and to assist with the collection, study and exchange of information relating to the marine living resources to which the Convention on the Conservation of Antarctic Marine Living Resources applied. The fund would also serve to encourage and promote the conduct of cooperative and collaborative research in order to extend knowledge of the marine living resources of the Antarctic marine ecosystem and in the provision of the best scientific information available to the Commission.[71]

116. *Marine environment and marine biological diversity*. UNEP noted that a key focus of a project addressing land-based activities in the western Indian Ocean had been to develop national capacity in marine science, as it was recognized that a lack of adequate technical capacity was a restricting factor for many of the region's Governments. For information on capacity-building activities focused on preventing harmful algal blooms, see paragraph 194 below. The Global Environment Facility, which provides grants to developing countries and States with economies in transition for projects related to protection of the global environment, highlighted its science-based approaches to capacity-building in ocean affairs and the law of the sea as part of its "international waters" focal area. Since 1995, GEF had advocated a science-based approach to building capacity to address existing concerns and opportunities for sustaining benefits in these large water bodies. This had also been complemented by global multi-State projects for sector-related technology transfer demonstrations and learning projects to foster capacity-building and South-to-South experience sharing. The use of science for introducing ecosystem-based approaches to management and for building the capacity of States to successfully implement the new approaches and technologies has been applied by GEF to integrated coastal management, as well as to improved management of large marine ecosystems (see section IV.B.3 below).

117. With respect to biodiversity in the deep and open oceans, the International Union for Conservation of Nature participates in the Global Ocean Biodiversity Initiative, which aims to help countries, as well as regional and global organizations, to use existing and new data, tools and methodologies to identify ecologically or biologically significant areas, with an initial focus on ocean areas beyond national jurisdiction. The Global Ocean Biodiversity Initiative plans to undertake capacity-building activities in 2010. A series of regional workshops will be convened to address issues relating to the identification of ecologically or biologically significant areas, including access to existing data and the selection of appropriate

[71] See the report of the twenty-eighth meeting of the Commission for the Conservation of Antarctic Marine Living Resources (2009), paras. 16.8 and 16.9.

tools and methodologies. Additionally, the Global Ocean Biodiversity Initiative has created a dedicated web portal and online geographic information system tools for sharing of experiences and case studies (http://openoceansdeepseas.org). This web portal includes a compilation of information about relevant topics, including scientific reports, Internet-based sources of data and tools.[72] Another noteworthy initiative is the Census of Marine Life, which is a global network of researchers in more than 80 States engaged in a 10-year scientific initiative to assess and explain the diversity, distribution and abundance of life in the oceans. The world's first comprehensive census of marine life — past, present and future — is expected to be released this year (see A/64/66/Add.2, para. 16). The census will be a valuable source of information for States.

118. In the context of the joint Intergovernmental Oceanographic Commission-International Hydrographic Organization Guiding Committee for the General Bathymetric Chart of the Ocean, a new generation of scientists and hydrographers in ocean bathymetry is being trained through a 12-month international training programme in deep ocean sciences.

119. *Climate change*. In the context of climate change, several capacity-building initiatives have been reported that have focused on enhancing marine scientific research and the exchange of data and information and strengthening institutional capacity.

120. The Subsidiary Body for Scientific and Technological Advice of the United Nations Framework Convention on Climate Change continues to maintain a regular dialogue with research programmes and organizations that are active in climate change research and thus plays a valuable role in providing new scientific information on climate change. In addition to emerging scientific findings, the research community has also been invited to regularly inform the Subsidiary Body of developments in research activities relevant to the Framework Convention, such as research planning activities, research priorities, gaps in the implementation of these priorities and research capacity-building activities.

121. At the fifteenth session of the Conference of the Parties to the Framework Convention in Copenhagen, in December 2009, a decision on systematic climate observations was adopted, which, inter alia, urged parties and invited relevant United Nations and international organizations to work towards addressing the priorities and gaps identified with respect to progress on the implementation plan for the Global Climate Observing System, and towards ensuring sustained long-term operation of essential in situ networks, including through the provision of the necessary resources. The decision also invited the Global Climate Observing System secretariat to update the implementation plan, taking into account emerging needs in climate observation, in particular those related to adaptation activities.

122. The Global Ocean Observing System is a permanent global system for observations, modelling and analysis of marine and ocean variables to support operational ocean services worldwide. The Global Ocean Observing System in Africa, supported by a project office of the Intergovernmental Oceanographic Commission, represents the ocean component of the Global Climate Observing System for Africa. Linkages with the UNEP Regional Seas Conventions and the large marine ecosystem projects have been developed in the framework of the

[72] Contribution of the International Union for Conservation of Nature.

Global Ocean Observing System in Africa. In recognition of the increasing amounts of data collected by drift buoys along the African coasts, the Intergovernmental Oceanographic Commission, in collaboration with the World Meteorological Organization will be organizing a workshop in Cape Town, South Africa, in April 2010 on the use of data from buoys.

123. The Baltic Marine Environment Protection Commission also reported on regional initiatives for capacity-building, including the joint Baltic marine science funding programme (BONUS) and the Baltic Sea climate change community initiative (BALTEX, a Baltic initiative of the World Climate Research Programme), which have strengthened the science base needed for the work of the Baltic Marine Environment Protection Commission.

B. Capacity-building activities and initiatives in other areas of ocean affairs and the law of the sea

1. Uniform and consistent application of the United Nations Convention on the Law of the Sea

124. The General Assembly attaches considerable importance to the consistent application of the provisions of the Convention (see, for example, resolution 64/71, para. 5). In this regard, the Secretary-General is responsible for undertaking efforts to promote better understanding of the Convention and the Part XI Agreement in order to ensure their effective implementation and for ensuring appropriate responses to requests of States, in particular developing States, for advice and assistance in implementing the provisions of the Convention and the Agreement. As part of ongoing efforts to assist States and to build capacities at the national level, the Division for Ocean Affairs and the Law of the Sea has prepared annual reports of the Secretary-General, special reports of the Secretary-General, including studies, and numerous publications,[73] providing an overview of major developments in ocean affairs and the law of the sea, highlighting the relevant practice of States and illustrating, among other things, best approaches to ocean governance. Other reports and publications have provided, for example, a matrix identifying the obligations of States under the United Nations Convention on the Law of the Sea and other instruments establishing the international standards, rules, regulations, practices and procedures referred to in the Convention, and dealt with the requirements of developing countries and the realization of benefits under the Convention (see para. 4 above).[74] In addition, several publications elaborated on technical aspects of the implementation of the Convention, including in relation to the establishment of baselines and the delineation of the outer limits of the continental shelf beyond 200 nautical miles or in order to assist in the implementation of specific provisions

[73] For details, see http://www.un.org/Depts/los.

[74] See, for example, *Obligations of States Parties under the United Nations Convention on the Law of the Sea and Complementary Instruments* (United Nations publication, Sales No. E.04.V.5) or the study referred to in paragraph 4 of the present report.

contained in the Convention (such as those related to the delimitation of maritime boundaries[75] or to marine scientific research (see para. 103 above)).

125. Several fellowship and internship programmes were established. In the United Nations, the Hamilton Shirley Amerasinghe Fellowship on the Law of the Sea assists candidates to acquire additional knowledge of the Convention, in order to promote its wider appreciation and application, and to enhance specialized experience in the law of the sea. Candidates are required to have a degree in law or a law-of-the-sea-related discipline, have at least five years of work-related experience and be between the ages of 25 and 40. Awards are made by the United Nations Legal Counsel on the recommendation of a high-level advisory panel. Fellows undertake studies at a participating institution, followed by a further internship in the Division for Ocean Affairs and the Law of the Sea. Since it became operational in 1986, 27 fellows from 25 States have been recipients of the Fellowship. Owing to insufficient funding, the twenty-second Hamilton Shirley Amerasinghe Fellowship could not be implemented, and applications for the twenty-third and twenty-fourth awards were not solicited. In the past year, a number of contributions have been made to the fellowship, following a fund-raising initiative by the Division for Ocean Affairs and the Law of the Sea. Additionally, the Legal Counsel has pledged, on an exceptional basis, $38,000 to the Fellowship from the trust fund established by the Secretary-General for the Office of Legal Affairs to support the promotion of international law. It is expected that an award will be made in 2010.

126. Another programme, the United Nations-the Nippon Foundation of Japan Fellowship Programme, entitled "Human resources development and advancement of the legal order of the world's oceans", has provided, since 2004, capacity-building opportunities to developing States through an advanced research fellowship in the field of ocean affairs and the law of the sea and related disciplines, including marine science in support of management frameworks. The fellowship is open to qualified Government officials and other mid-level professionals from developing countries. The Programme is implemented in two phases: a six-month academic research phase implemented in partnership with one of the 40 academic host institutions, followed by a three-month practicum phase, normally hosted by the Division for Ocean Affairs and the Law of the Sea. Since its inception, the Programme has received some 300 applications from over 80 States and, including reserve fellows, has made 81 awards to nationals from 49 States, approximately 40 per cent of whom have been female. The Programme has also developed a continuing capacity-building component for its alumni in order to serve their evolving needs as they progress through their careers and as new developments in ocean affairs and the law of the sea place new knowledge requirements on them. The alumni component will also serve to foster greater understanding between individuals and to facilitate lasting global interpersonal relationships, both at the personal and professional levels, and will continue to cultivate an integrated,

[75] See, for example, *Training Manual for Delineation of the Outer Limits of the Continental Shelf Beyond 200 Nautical Miles and for Preparation of Submissions to the Commission on the Limits of the Continental Shelf* (United Nations publication, Sales No. E.06.V.4); *Handbook on the delimitation of maritime boundaries* (United Nations publication, Sales No. E.01.V.2); and *Baselines: An Examination of the Relevant Provisions of the United Nations Convention on the Law of the Sea* (United Nations publication, Sales No. E.88.V.5).

practical and forward-looking vision with respect to ocean affairs and law of the sea issues.[76]

127. In addition to numerous internships which are part of the United Nations Internship Programme, the Division for Ocean Affairs and the Law of the Sea has also organized, jointly with the United Nations Institute for Training and Research, annual briefings since 2002. These briefings provide an overview of the most recent developments in the field of ocean affairs and the law of the sea, and highlight newly emerging challenges in both strengthening and developing the legal regime governing the use of oceans in the context of key elements of the regime established by the United Nations Convention on the Law of the Sea.

128. Considerable assistance has also been provided by the Division for Ocean Affairs and the Law of the Sea in response to individual requests by States for advice and assistance, including through the participation of Division experts in various training activities, workshops and symposiums at the national level. It can be noted that this form of assistance tends to be quite efficient, as it allows for the participation of a number of policymakers and legal and technical experts at the national level, at relatively low cost to the hosting developing State since there is no international travel involved. The delivery of capacity-building in this format is affected, however, by the scarce resources available to the Secretariat, and usually requires that the organizers defray expenses related to the participation of Division experts.

129. The United Nations Audiovisual Library of International Law,[77] an activity established in 1997 under the Programme of Assistance in the Teaching, Study, Dissemination and Wider Appreciation of International Law (see General Assembly resolution 52/152), provides high-quality international law training and research materials to recipients on a global level. It consists of: (a) historic archives containing documents and audiovisual material relating to the negotiation and adoption of legal instruments under the auspices of the United Nations and related organizations since 1945; (b) a lecture series featuring a permanent collection of lectures on international law, including the law of the sea, given by leading international law scholars and practitioners; and (c) a research library providing an online international law library with links to treaties, jurisprudence, publications, documents, scholarly writings and research guides. The United Nations Audiovisual Library is available for free via the Internet (see www.un.org/law/avl).

130. As can be seen from the information provided in the following sections, there are also many other United Nations agencies, programmes, bodies and other organizations that contribute through their activities to the wider promotion of the United Nations Convention on the Law of the Sea and its uniform and consistent application, in particular the International Tribunal for the Law of the Sea (see paras. 269-271 below) and the International Seabed Authority (see para. 104 above and para. 185 below).

131. An important element of the capacity-building activities of the Division for Ocean Affairs and the Law of the Sea is the support of the efforts of other

[76] Further information, including admission criteria, research papers of past fellows, application files and an up-to-date list of participating host institutions, is available at www.un.org/depts/los/nippon.

[77] Prepared and implemented by the Codification Division of the Office of Legal Affairs.

international, in particular regional, organizations and bodies aimed at furthering the implementation of international law, including the law of the sea, within the scope of their competence. Participation of Division experts in conferences, seminars, symposiums, workshops and training programmes organized by other organizations is aimed at assisting in the uniform and consistent application of the United Nations Convention on the Law of the Sea and its further development through other legal instruments; underlining the need for an integrated, interdisciplinary and intersectoral approach, as well as the need for cooperation and coordination, especially at the national and regional levels; and highlighting the importance of the Convention as the basis for national, regional and global action and cooperation in the marine sector. Several examples of such activities are cited in the present report (see, for example, paras. 108, 145, 171, 239, 245 and 261).

132. Recent examples include (a) the Pan African Conference on Maritime Boundaries and the Continental Shelf, organized as part of the implementation of the African Union Border Programme, and held in Accra on 9 and 10 November 2009, in which the Division for Ocean Affairs and the Law of the Sea assisted the convener of the conference, the African Union, in providing participants with an overview of the Convention's regime concerning maritime zones, with particular emphasis on the continental shelf, as well as its provisions relating to maritime boundary delimitation and (b) the workshop on submarine cables and the law of the sea, in which the Division assisted the convener, the Center for International Law of the National University of Singapore, in providing participants with an overview of the legal regime in the Convention regarding submarine cables.[78] The workshop was aimed at promoting an understanding of the existing legal regimes and identifying gaps.

133. Another recent example is the follow-up meeting on the technical coordination mechanism between the Transitional Federal Government of Somalia, Puntland and Somaliland for anti-piracy activities (held from 3 to 5 February 2010 in Djibouti), in which the Division assisted the convener, IMO, in providing the members of the technical coordination mechanism (which was established by a technical operational agreement among the parties in Kampala on 12 January 2010) with technical assistance with regard to the regime in the Convention concerning maritime zones, in particular the exclusive economic zones.

134. There are also many institutions that provide capacity-building in relation to the Convention, including the Rhodes Academy of Oceans Law and Policy,[79] an international collegial institution dedicated to fostering a better understanding of the modern law of the sea and promoting adherence to the rule of law in the world's oceans; the International Foundation for the Law of the Sea, which established in 2007 an annual summer academy at the International Tribunal for the Law of the Sea for studies of international law of the sea and maritime law (see also para. 273 below), and the International Ocean Institute, which provides four- to eight-week training programmes in ocean governance and regional ocean governance.[80]

[78] See footnote 44.

[79] See www.virginia.edu/colp/rhodes-academy.html.

[80] See http://internationaloceaninstitute.dal.ca and www.ioinst.org.

2. Delineation and delimitation of maritime zones

135. Regarding maritime spaces, in addition to the activities referred to above, the Division for Ocean Affairs and the Law of the Sea organized a series of regional and subregional training courses on delineation of the outer limits of the continental shelf beyond 200 nautical miles and on the preparation of submissions to the Commission on the Limits of the Continental Shelf. These training courses, offered since 2005, have benefited 53 States and 299 trainees to date. The structure and content of these training courses was based on a training manual prepared by the Division in cooperation with some members of the Commission. The participation of 157 trainees from 44 States was made possible thanks to financial assistance from the trust fund established for that purpose by the General Assembly in its resolution 55/7, as amended by resolution 58/240. The trust fund is administered by the Division. According to the statement of accounts, the balance of the trust fund at the end of December 2009 was $744,452.52.

136. The UNEP Shelf Programme, coordinated through the Global Research Information Database in Arendal, Norway, was established to assist developing States and small island developing States in the delineation of the outer limits of their continental shelves. Among other things, the Shelf Programme offered to those countries technical support, including support in identifying, collecting and analysing existing data. It also organized regional and national training workshops, a number of them in cooperation with the Division.

137. The International Hydrographic Organization capacity-building programme, which is referred to in more detail in paragraphs 228 to 230 below, aims at enhancing the technical capacity of developing States required for the determination of the baselines and the establishment of the outer limits of maritime zones, including the lines of delimitation. The potential for combining the efforts undertaken by the Division in the clarification of technical aspects of the United Nations Convention on the Law of the Sea in relation to maritime spaces and the International Hydrographic Organization programme could be further explored. In addition, there is a potential for combining capacity-building activities in connection with the joint endeavour under way related to the development of product specification on the jurisdictional limits within electronic nautical charts and the related promotion of hydrography in the context of implementing the Convention.

138. A major role in capacity-building activities in relation to the delineation and delimitation of maritime zones is played by other intergovernmental, including regional, organizations. For example, several developing States, especially small island developing States, that are members of the Commonwealth receive advice and assistance from the Commonwealth concerning the establishment of the outer limits of the continental shelf beyond 200 nautical miles. Since 2001, the ocean and islands programme of the Pacific Islands Applied Geoscience Commission, through its Pacific island maritime boundaries project, has led Pacific island countries in the development of technical solutions, baseline surveys, reviews of archipelagic status and baseline development, maritime zone delimitation and shared boundary solutions. So far, the programme has provided some 75 per cent of the necessary data to support these countries, with a view to proclaiming their baselines and the limits of their maritime zones. The programme has also taken the leading regional

role in coordinating and assisting Pacific island countries in the establishment of the outer limits of the continental shelf beyond 200 nautical miles.

139. The contribution of non-governmental institutions to the enhancement of national capacities is also noteworthy. In particular, the International Boundaries Research Unit of Durham University provides the following: practical expertise in relation to international boundaries on land and at sea around the world; expertise in boundary delimitation and delineation, border management and territorial dispute resolution; and academic leadership in the study of boundaries and their impact on international relations and borderland development (see www.dur.ac.uk/ibru).

3. Integrated management of oceans and seas and ecosystem approaches

140. In recognition of the challenges involved in implementing integrated coastal management, many capacity-building activities have focused on building institutional frameworks, as well as training personnel in various aspects of this approach. Some examples are provided below, based on the contributions to the present report.[81]

141. The Global Environment Facility has been very active in capacity-building for integrated coastal management, and has mobilized $880 million through its large marine ecosystems and coastal management projects to support country-driven action at different levels.[82] At the large marine ecosystem level, GEF projects are piloting and testing how the integrated management of oceans, coasts, habitats and freshwater basins can be implemented though an ecosystem-based approach. In this regard, GEF has provided substantial funding to support country-driven projects for introducing multisector, ecosystem-based assessment and management practices for large marine ecosystems located around the margins of the oceans. For example, in the mid-1990s, the Governments of Angola, Namibia and South Africa requested assistance from GEF for a project that led to the establishment of the Benguela Current Large Marine Ecosystem project and, eventually, of the Benguela Current Commission.

142. In support of large marine ecosystems, GEF also works at other levels to foster integration, participation and reform processes for implementing integrated coastal management. One example of the provincial/municipal level of action is the GEF/UNDP Partnerships in Environmental Management for the Seas of East Asia (see para. 144 below), with its focus on integrated coastal management. Assistance from the Global Environment Facility at the community level focuses on habitat conservation for community livelihoods, food security and carbon sequestration. Another example is the GEF/UNEP South China Sea and Gulf of Thailand project, which built on community knowledge of fish reproduction and co-management to limit gear and fishing at critical periods of life cycles in order to sustain the fisheries.

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[81] Contributions of the Food and Agriculture Organization of the United Nations, the Global Environment Facility, the Partnerships in Environmental Management for the Seas of East Asia, the South Asia Cooperative Environment Programme and the United Nations Development Programme.

[82] In total, the Global Environment Facility has provided approximately $750 million in grants to 127 recipient States for coastal and marine projects, with another $3.2 billion in co-financing. Since its establishment in 1991, the Facility has allocated $8.8 billion, supplemented by $39 billion in co-financing, for projects in 165 States.

143. GEF also works at the level of river basins draining to coasts in order to improve water flow regimes and reduce pollution loading consistent with the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (see para. 189 below). At the programme level, GEF aims at building on strategic action programmes agreed by States by supporting programmes involving multiple projects to provide a better chance of fostering on-the-ground results. The Danube/Black Sea basin was the focus of the first of these programmes. Several additional programmes have been requested by States, such as the GEF/World Bank/FAO/World Wildlife Fund sustainable fisheries investment fund for the large marine ecosystems of sub-Saharan Africa. Two other programmes are the Coral Triangle Initiative, involving GEF and the Asian Development Bank (see para. 173 below) and the "Sustainable Med" (Mediterranean) programme, involving GEF and the World Bank.

144. GEF, UNDP, and Partnerships in Environmental Management for the Seas of East Asia have developed a common framework for sustainable coastal development as an operational tool for local Governments to monitor existing conditions, responses, impacts and outcomes of integrated coastal management programmes. Partnerships in Environmental Management for the Seas of East Asia has also developed a post-graduate programme in integrated coastal management to provide the next generation of leaders with the knowledge and skills needed to plan and manage the coasts and seas. In this context, the Partnerships in Environmental Management for the Seas of East Asia Resource Facility developed and conducted a survey on the demand and supply of human resources for integrated coastal management for the East Asian seas region. In addition, Partnerships in Environmental Management for the Seas of East Asia is establishing integrated coastal management learning centres involving national universities and research institutions, which have set up core teams of trainers and are providing technical assistance to local Government units for the implementation of integrated coastal management. The organization has also prepared an integrated coastal management model course, and pilot-tested the course in 2008. Partnerships are being forged with internationally and regionally recognized areas of excellence. With the signing of the agreement recognizing the legal personality of Partnerships in Environmental Management for the Seas of East Asia by eight member countries, the organization hopes to further strengthen and promote its niche in the promotion and implementation of integrated coastal management.

145. In recent years, ecosystem approaches have developed as an evolution of integrated coastal management, with a greater emphasis on ecosystem goals and objectives, and a number of capacity-building activities have also been developed in this respect. These activities also support building the resilience of coastal and marine ecosystems in the face of disturbances and uses, including the adverse impact of climate change (see para. 213 below). For example, a training workshop was delivered in 2008 by UNEP, the Division for Ocean Affairs and the Law of the Sea and other partners on ecosystem approaches to coastal and ocean management, focusing on ecosystem-based management in eastern Africa, with the objective of providing Government officials and managers in the region with the necessary tools and skills to develop and implement ecosystem approaches to the management of coastal and marine environments.[83] The training also resulted in the validation of

[83] Contribution of the United Nations Environment Programme.

the manual on developing and implementing ecosystem approaches to the management of ocean-related activities, which was developed by the Division for Ocean Affairs and the Law of the Sea in the context of the Train-Sea-Coast programme.[84]

146. Other capacity-building activities have focused on enhancing science and improving the integration of science in decision-making based on an ecosystem approach.[85] For example, GEF has supported the use of science for introducing ecosystem-based approaches to management in the context of integrated coastal management and large marine ecosystem projects (see para. 116 above). In addition, projects at different levels are now being complemented by ecosystem-based approaches for areas beyond national jurisdiction.

147. In particular, GEF has adopted a five-module indicator approach to assessment and management of large marine ecosystems in order to introduce ecosystem-based approaches and sound science for better decision-making. The approach has been critical for integrating science into management, building capacity and establishing appropriate governance regimes to change human behaviour in different sectors. Recent work under the UNDP-GEF Agulhas and Somali Current Large Marine Ecosystem Project included 120 days of oceanographic cruises on the research vessel *Fridtjof Nansen*, with the aim of filling gaps in the information required for a science-based transboundary diagnostic analysis and collecting baseline information for the region.

148. The Guinea Current Large Marine Ecosystem Project focuses on the primary issues identified by the 16 West and Central African countries sharing the large marine ecosystem as having led to unsustainable fisheries and use of other marine resources, as well as the degradation of marine and coastal ecosystems.[86] The long-term development goals of the project are to recover and sustain depleted fisheries, restore degraded habitats and reduce land- and ship-based pollution by establishing a regional management framework for the sustainable use of resources. Priority action areas include reversing coastal area degradation and the depletion of living resources. The project supports scientific cooperation and builds capacity among the 16 riparian countries to provide the information basis for the adoption of an ecosystem-based management approach.

149. Several UNEP Regional Seas Programmes were involved in activities in 2009 to increase capacity-building for Government officials and researchers in ecosystem-based management and socio-economic valuation of ecosystem services, and to address the challenge of improving the link between science and policy (see also para. 116 above).

4. Conservation and management of marine living resources

150. In order to address the capacity-building needs of developing countries, several fisheries-related instruments have requested States to assist these countries in various areas of fisheries conservation and management. In the Johannesburg

[84] See also A/63/63/Add.1, para. 156, and A/64/66, para. 162.

[85] See the contributions of the Global Environment Facility, the Organization of the Petroleum Exporting Countries, the United Nations Environment Programme and the United Nations Industrial Development Organization.

[86] Contribution of the United Nations Industrial Development Organization.

Plan of Implementation, the international community has been invited to assist developing countries in coordinating regional and subregional policies and programmes to provide conservation and sustainable management of fishery resources, implement integrated coastal area management plans, promote sustainable small-scale fishing activities and develop related infrastructure.[87] The FAO Code of Conduct for Responsible Fisheries, in its articles 5.2 and 12.18, recommends that States and relevant international organizations strengthen the research capacities of developing countries in the areas of data collection and analysis, information, science and technology, human resources development and provision of research facilities.

151. The United Nations Fish Stocks Agreement, in its article 25, provides that assistance to developing countries is aimed at enhancing their ability to conserve and manage straddling fish stocks and highly migratory fish stocks, enabling their participation in high seas fisheries for such stocks and facilitating their participation in regional fisheries management organizations. Assistance shall include financial assistance; assistance relating to human resources development; technical assistance; transfer of technology, including through joint venture arrangements; and advisory and consultative services. The Agreement also provides that such assistance shall be directed towards collection, reporting, verification, exchange and analysis of fisheries data and related information; stock assessment and scientific research; capacity-building and training in monitoring, control, surveillance, compliance and enforcement; and access to technology and equipment. At the 2006 Review Conference on the Fish Stocks Agreement, it was recommended to States that they cooperate with and assist developing countries in designing and strengthening their regulatory fisheries policies, as well as those of regional fisheries management organizations in their regions (see A/CONF.210/2006/15, annex, para. 55 (c)).

152. In its annual resolutions on sustainable fisheries, the General Assembly has encouraged, inter alia, the international community and bodies for fishers to increase capacity-building and technical assistance for fishers, in particular small-scale fishers, in developing countries, and in particular small island developing States, consistent with environmental sustainability. In order to enhance sustainable development in developing countries and enable them to achieve better economic returns from their fishery resources, the Assembly has encouraged the greater participation of developing countries in fishing activities authorized by them to be undertaken in areas under their national jurisdiction by distant-water fishing nations (see resolution 64/72, paras. 135-139).

153. In addition to information received from intergovernmental organizations for the present report, this section will also provide information on capacity-building activities and initiatives included in a compilation document prepared by the Secretariat for the eighth round of informal consultations of states parties to the United Nations Fish Stocks Agreement in 2009. The document contains information on available capacity-building mechanisms and sources of assistance to developing States for capacity-building and human development at the national, regional and global levels in the conservation and management of fishery resources, including straddling fish stocks and highly migratory fish stocks[88] (see also paras. 112-115 above).

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[87] See footnote 13, Johannesburg Plan of Implementation, para. 30 (g).

[88] See ICSP8/UNFSA/INF.4/Rev (see footnote 37).

154. The compilation prepared by the Secretariat indicates that several States provided capacity-building in various areas of fisheries conservation and management. Australia provided assistance to the Central and South Pacific region in fisheries sciences and management through the Australian Agency for International Development and other agencies. Denmark provided assistance through bilateral partnerships with specific countries. The European Union assisted developing States of the African, Caribbean and Pacific region through various financial mechanisms. Assistance is aimed at reinforcing capacities in several areas, including stock assessment; monitoring, control and surveillance; sanitary conditions for fishery products; promotion of sustainable fisheries; institutional capacities; harmonization of fisheries policies and artisanal fisheries. Japan promoted capacity-building through various trust funds and the Overseas Fishery Cooperation Foundation of Japan, in cooperation with regional fisheries management organizations, in the fields of fisheries statistics, training courses on data collection and handling, strengthening of fisheries management, responsible fisheries development, human resources development and institutional framework improvement.[88]

155. Mexico implemented, at the bilateral level, advisory and capacity-building projects to improve fisheries management in a number of Central American countries. New Zealand provided support to regional fisheries management organizations and to developing States of the Central and South Pacific region through NZAID, New Zealand's international aid and development agency, and other mechanisms, in the fields of scientific research; enhancement of the regulatory and policy environment for fisheries; monitoring, control and surveillance; assistance to small-scale inshore fisheries; and integrated management of coastal resources. Norway provided bilateral assistance in fishery research, fisheries training and education, fisheries management, strengthening of administrative, technical and managerial capacities, policy formulation and management, institutional strengthening, research and stock assessment, data collection and analysis, development of scientific capacity, academic programmes in fisheries economics and fisheries laws, sustainable utilization of marine living resources and application of the ecosystem approach to fisheries.[88]

156. The Russian Federation provided assistance at the bilateral and regional levels in the development of a scientific basis for the conservation and management of fish stocks and for sustainable fisheries, and in training nationals of developing countries for fisheries-related studies at Russian academic institutions. The United States assisted developing countries in various areas of conservation and management of marine living resources, including fishery resources, through the United States Agency for International Development, the National Oceanic and Atmospheric Administration, the State Department and the Millennium Challenge Corporation.

157. At the global level, FAO has provided capacity-building to developing countries in respect of topics covered by its mandate. Regional workshops have been organized for the application of the Fishery Resources Monitoring System; monitoring, control and surveillance; port-State measures; marine science for the ecosystem approach to fisheries; and biosecurity in the aquaculture sector. Training was also provided to assist in the implementation of the FAO Code of Conduct for Responsible Fisheries, fisheries livelihood programmes and large marine ecosystem projects, and to address the impact of illegal, unreported and unregulated fishing and destructive fishing practices on marine habitats and biodiversity. Several trust

funds, including the FishCode trust fund, have supported FAO capacity-building activities. United Nations University, through its fisheries programme based in Iceland, has trained scientists and fisheries specialists since 1987. Approximately 200 fellows have graduated from the six-month intensive training programmes, and 700 fellows have participated in the shorter courses (see www.unuftp.is).

158. The Assistance Fund established under Part VII of the United Nations Fish Stocks Agreement was established by the General Assembly in its resolution 58/14. Approximately 20 developing States parties to the Agreement have benefited from the Fund to date. An increasing number of applications have been made since 2008 for the purposes of paragraphs 14 (d) (capacity-building activities in key areas) and 14 (f) (human resources development, technical training and technical assistance) of the terms of reference of the Fund. For example, the Assistance Fund provided financial assistance to developing States parties to participate in the second Global Fisheries Enforcement Training Workshop (Trondheim, Norway, 2008),[89] and in the workshops on tuna data and on tuna stock assessment and related issues in 2009.[90] The Fund will also enable the participation of developing States parties in the tuna data workshop to be held in April 2010 and the workshop on tuna stock assessment and related issues organized by the secretariat of the Pacific Community,[91] to be held in June and July 2010, as well as training, implementation and further development of the integrated fisheries statistics system.[92]

159. Through the international waters focal area, GEF and its partners assist developing countries that share large marine ecosystems to build capacity to more sustainably address large marine ecosystem transboundary concerns, including coastal and marine fisheries. In particular, UNDP reported that the UNDP-GEF Pacific Islands Oceanic Fisheries Management project in the Western and Central Pacific Warm Pool large marine ecosystem was strengthening national arrangements for the conservation and management of transboundary oceanic fishery resources and the capacity of small island developing States to meet their obligations under the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean.

160. The GEF/UNEP/FAO project on alternatives to shrimp trawling has significantly cut the unwanted catch of young fish, turtles and other by-catch by as much as 30 to 70 per cent in demonstration States. In Mexico, 1 of the 12 States involved in the project, the deployment of environmentally friendly trawls allied to improved fishing methods has cut fuel costs on trawlers. A reduction of fuel consumption and a 20 per cent increase in catch were economic selling points that encouraged fishermen to use the new by-catch reduction devices. Cooperation with industry was an important by-product of this work as Governments built their capacity to work with the business community.[93]

161. At the regional level, the Commission for the Conservation of Antarctic Marine Living Resources has developed a programme to enhance cooperation between the Commission and non-contracting Parties, including a regional training and capacity-building project in southern Africa in 2010 (see also para. 115 above).

[89] Financial assistance provided to the Seychelles and Uruguay.

[90] Financial assistance provided to Senegal.

[91] On behalf of small island developing States parties.

[92] Financial assistance provided to Mozambique.

[93] Contribution of the Global Environment Facility.

The Pacific Islands Forum Fisheries Agency has initiated capacity-building initiatives to enhance fisheries conservation and management among members. In addition to assistance for the preparation of relevant national and international meetings, and the hosting of internship programmes, the Agency has implemented activities to enhance the capacity of member States in fisheries management. These include the following workshops and courses: workshop on high seas boarding and inspection procedures under the Western and Central Pacific Fisheries Convention (Fiji, 2008); legal workshop for the legislative implementation of the Third Implementing Arrangement to the Nauru Agreement (Honiara, 2009); annual monitoring, control and surveillance working group meetings; annual prosecutions; dockside boarding workshops; legal workshops for the implementation of commitments under the Western and Central Pacific Fisheries Convention (Honiara, 2009); workshop on the South Pacific Regional Fisheries Management Organization (Fiji, 2009); training courses for observers to the secretariat of the Pacific Community and Pacific Islands Forum Fisheries Agency (2009); annual subregional management option workshops; and annual management option consultations. In addition, the Pacific Islands Forum Fisheries Agency has participated in the development and delivery of observer training courses to members, and has also delivered the train-sea-coast course on responsible fisheries that focused on international fisheries instruments created since the United Nations Conference on Environment and Development, in cooperation with the University of the South Pacific, the Pacific Regional Environment Programme, FAO and the Division for Ocean Affairs and the Law of the Sea.

162. The General Fisheries Commission for the Mediterranean reported that, at the request of concerned members, it had taken action to strengthen their national research institutions in the field of data collection, stock assessment and fisheries management through FAO subregional projects for the Mediterranean. The Inter-American Tropical Tuna Commission indicated that its Antigua Convention (2003) contained provisions relating to capacity-building for developing member States, including technical assistance, technology transfer and other forms of assistance. The International Commission for the Conservation of Atlantic Tunas was managing several capacity-building funds that could assist scientists from developing States (see para. 113 above). It was also operating two research programmes — the enhanced billfish research programme and the bluefin year programme — which were aimed at collecting data and biological information and which could indirectly serve to build capacity for developing countries.

163. The South East Atlantic Fisheries Commission and the Western and Central Pacific Fisheries Commission have each established a special requirements fund to assist developing member States in relation to the conservation and management of fishery resources in their respective Convention areas. The Western and Central Pacific Fisheries Commission has cooperated with GEF and other partners on an initial three-year project to build capacity in East Asia and the Western Pacific to improve regional information available for tuna fisheries and to conserve and manage highly migratory fish stocks. The secretariat of the Pacific Community operates fisheries capacity-building programmes focusing on practical training that assist small island developing States in the management and sustainable development of their fishery resources. In 2009, the secretariat of the Pacific Community held workshops in areas ranging from safety at sea for artisanal fishers

to training for fisheries observers for tuna fishing vessels operating in the west-central Pacific Ocean (see also para. 211 below).

5. Conservation and sustainable use of marine biological diversity

164. As identified above (see chapter III on "capacity-building needs of States"), the challenges and obstacles to the conservation and sustainable use of marine biodiversity, including marine genetic resources, are numerous. The limited capacity of States, in particular developing States, in this area is especially important in the context of the fast approaching targets for meeting the commitments set out in the Johannesburg Plan of Implementation and the Millennium Development Goals, as well as those agreed in the context of the Convention on Biological Diversity, and in view of the key role that healthy ecosystems play in relation to our capacity to address the impact of climate change. In order to assist States in this regard, many capacity-building activities continue to be carried out by several organizations, including intergovernmental and non-governmental organizations. Some examples of recent activities, mostly from contributions to the present report, are presented below. In view of the cross-sectoral nature of the conservation and sustainable use of marine biodiversity, many of the capacity-building activities described in other sections of the present report are also relevant (see in particular, section IV.A and sections IV.B.3-IV.B.4 and IV.B.7-IV.B.8; see also A/64/66, paras. 155-174).

165. The Institute of Advanced Studies of UNU reported that it was undertaking a project to assess the implementation of the Convention on Biological Diversity's national biodiversity strategies and action plans, large components of which related to marine and coastal areas. One of the expected outputs of the project was recommendations to countries and funding agencies on improving national biodiversity planning.

166. The International Union for Conservation of Nature observed that, in collaboration with other partners, it had organized a coral reef training workshop for East Africa (Sodwana, South Africa, November 2009), which was attended by scientists, resource managers, law enforcement officers and litigators. In 2010, the International Union would also launch a project funded by the Environment Public Authority of Kuwait, aimed at assessing the status of Kuwait's coral reefs and developing a long-term monitoring programme. The project would use a participatory approach for the development of area-specific visions policies for marine ecosystem management and development. The International Union had also developed a project entitled "Management of climate change impacts on coral reefs and coastal ecosystems in tsunami-affected areas of the Andaman Sea and South Asia" (see also paras. 174 and 215 below).

167. In 2010, the International Union is initiating a mangrove initiative focusing on five countries in the Pacific (Fiji, Samoa, the Solomon Islands, Tonga and Vanuatu) in collaboration with the Pacific Regional Environment Programme and other partners and with support from the Government of Germany.

168. The secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora is actively involved in providing training on the Convention, which includes several marine species in its annexes, through national and regional training workshops for management and scientific authorities, law enforcement agencies (including customs) and legislators. The secretariat of the

Convention also conducts train-the-trainer workshops to improve teaching and facilitation skills and to encourage the use of Convention training materials.[94]

169. Several resolutions of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals have called for, inter alia, capacity-building to implement conservation action, the sharing of technical expertise and resources, the identification of priorities for future research, the development of capacity-building toolkits, the convening of regional workshops and the establishment of national training centres, as well as the identification and dissemination of best practice by-catch mitigation techniques.[95] Several relevant species-specific memorandums of understanding and action plans concluded under the umbrella of the Convention also include capacity-building measures. In that context, cooperation is ongoing between the participating range States, and a number of capacity-building workshops are convened. Through its small grants programme, the Conference of the Parties has supported projects with a strong capacity-building component. Jointly with UNEP a thesis award on migratory species conservation was also launched to promote scientific research and the conservation of migratory species, and thematic year campaigns have strong capacity-building and awareness-raising components.[96]

170. The Conference of the Parties has integrated assistance to developing countries into its operational practices, including by financing their participation in relevant meetings and the dissemination of information through traditional means for countries with difficulties in accessing electronic resources.[96]

171. The secretariat of the Convention on Wetlands of International Importance especially as Waterfowl Habitat has organized training related to wetland management. In particular, it organized, in cooperation with the African Institute for Environmental Law, a judicial workshop for French-speaking magistrates and judges in environmental law in Abidjan, Côte d'Ivoire, in April 2009, in which the Division for Ocean Affairs and the Law of the Sea participated to highlight relevant aspects of the United Nations Convention on the Law of the Sea. The workshop was aimed at providing African judges with practical guidance related to environmental issues that are likely to arise in litigation.

172. *Marine protected areas*. In 2009, the secretariat of the Convention on Biological Diversity organized regional capacity-building and review workshops in the Asian and Pacific, African, Latin American and Caribbean, and Central and Eastern European regions in the context of the programme of work on protected areas. Representatives of about 100 countries participated in these workshops covering 15 subregions. Outcomes of the workshops included the following: capacity-building on how to integrate protected areas into wider landscapes, seascapes and sectors, and the potential of such an integrated approach for also addressing climate change adaptation and mitigation issues; heightened awareness of various types of protected area governance and exploration of innovative

[94] See www.cites.org/eng/cop/15/doc/E15-16-01.pdf.

[95] See Conference of the Parties resolution 9.7, "Climate change impacts on migratory species"; resolution 9.9, "Migratory marine species"; resolution 9.12, "Capacity-building strategy"; and resolution 9.18, "By-catch".

[96] Joint contribution of the secretariat of the Conference of the Parties to the Convention on Migratory Species and of the secretariat of the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas.

governance systems in different regions; and awareness about the values and benefits of protected areas.[97] Based on the seven scientific criteria and the guidance for designing representative networks of marine protected areas adopted at the ninth Conference of the Parties to the Convention on Biological Diversity, in May 2008, the Global Ocean Biodiversity Initiative, referred to in paragraph 117 above, produced a report entitled "Defining ecologically or biologically significant areas in the open oceans and deep seas: analysis, tools, resources and illustrations", which provides a general overview of scientific tools, technologies and data sources, as well as a number of illustrations on how these techniques can be applied to individual criteria for ecologically and biologically significant areas (see www.cbd.int).

173. The Global Environment Facility, in the context of its biodiversity focal area, provides grants for coastal and marine protected areas as part of national park systems and other activities. For example, in collaboration with the Asian Development Bank, GEF has funded the Coral Triangle Initiative, which is aimed at preserving the region's coastal and marine ecosystems and developing measures to help this biodiversity-rich area adapt to climate change (see also section IV.B.3 of the present document).

174. The South Asia Cooperative Environment Programme has organized a number of training workshops on marine and coastal protected areas. In the context of the project on the management of the impact of climate change on coral reefs and coastal ecosystems in tsunami-affected areas of the Andaman Sea and South Asia (see para. 215 below), the International Union for Conservation of Nature has developed a toolkit on the management of South Asian marine and coastal protected areas, with the direct engagement of over 50 international and regional experts. Training on using the toolkit was also organized. Other upcoming capacity-building activities of the International Union for Conservation of Nature include a regional training workshop on the management of marine protected areas, to be held in Jeddah, Saudi Arabia, in July 2010, which will be conducted jointly with the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden.

175. *Spatial planning*. UNEP reported that it had held in 2009 an international expert workshop on adaptive ecosystem-based marine spatial management in the face of environmental change for experts in the field of marine spatial planning, ecosystem-based management, climate change prediction, ocean governance systems, adaptive management and risk assessment. The group of experts integrated recent scientific findings and management experiences in designing adaptive marine spatial management tools to cope with environmental change. The workshop considered the following: management instruments robust enough to counter the possible effects of climate change, options for field pilot projects to develop and demonstrate a conceptual framework for governance dealing with ecosystem uncertainty, and other future UNEP capacity-building activities.

176. Since 1999, Partnerships in Environmental Management for the Seas of East Asia has conducted several specialized training workshops, including on the development and implementation of a coastal use zoning plan and institutional

[97] These workshops were organized pursuant to decision IX/18 of the Conference of the Parties to the Convention on Biological Diversity. Further details can be found in the workshop reports, available at from www.cbd.int.

framework. In 2009, the organization conducted regional training sessions on the implementation and enforcement of land- and sea-use zoning, as well as a regional training course on novel technology for marine and environmental management.

177. The Global Open Oceans and Deep Seabed Biogeographic Classification developed by the Intergovernmental Oceanographic Commission of UNESCO and other partners aims at providing scientific and technical criteria for planning and decision-making related to open oceans and deep seabed areas.

178. *Marine genetic resources*. In several resolutions, the General Assembly has encouraged States and international organizations, including through bilateral, regional and global cooperation programmes and partnerships, to continue to support, promote and strengthen capacity-building activities, in particular in developing countries, in marine scientific research, taking into account the need to create greater taxonomic capabilities.[98]

179. As regards biotechnology, an UNCTAD report on capacity-building for the participation of developing countries in the bioeconomy notes that a number of intergovernmental organizations have become major actors and sources of knowledge in biotechnology, including the transfer of scientific knowledge and information about biotechnology. The United Nations Educational, Scientific and Cultural Organization, UNEP, UNCTAD, UNIDO, the World Health Organization (WHO) and FAO have made significant progress in the transfer of knowledge and information on biotechnology. For example, UNESCO and UNEP established an international network of microbiological resource centres, which are instrumental in training scientists from developing countries in microbial aspects associated with biotechnology. The United Nations Industrial Development Organization led the creation of the International Centre for Genetic Engineering and Biotechnology, which is dedicated to advancing research and training in biology and biotechnology, with a special emphasis on the needs of developing countries.[99]

180. The Institute of Advanced Studies of UNU has developed a web-based biological prospecting information resource (see www.bioprospector.org) to improve the informational basis relating to past and ongoing uses of biological and genetic resources, including from marine areas and the polar regions. The resource makes available informational material about topics such as access and benefit-sharing, legislation, intellectual property and economics. Links to relevant publications are also provided.

181. In relation to intellectual property rights, the World Intellectual Property Organization is compiling an online, searchable database of biodiversity-related access and benefit-sharing agreements, with a particular emphasis on the intellectual property aspects of such agreements. The database serves as a capacity-building tool by providing illustrative examples of the approaches taken when reaching mutually agreed terms concerning access and benefit-sharing. The Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore has also worked on principles and draft materials on guidelines for the intellectual property aspects of equitable benefit-sharing arrangements (see www.wipo.int/ck/en/genetic.

[98] See resolutions 62/215, para. 136; 63/111, para. 125; and 64/71, para. 145.

[99] See United Nations Conference on Trade and Development, "The Biotechnology Promise" (footnote 39).

6. Sustainable use of non-living resources and development of marine renewable energy

182. *Non-living resources.* A large proportion of research and development, exploration and exploitation of marine non-living resources, including offshore oil, gas and mineral resources, is conducted within the national jurisdiction of States.

183. In 2010, the Pacific Islands Applied Geoscience Commission is expected to sign an agreement with the European Union for a four-year project to develop regional and national policy and guidelines for the deep-sea minerals industry of the exclusive economic zones of the Pacific island countries. Over 1 million square kilometres of Pacific island exclusive economic zones are currently either under tenement holding or application for exploration. This European Union-funded programme of work will support the first major coordinated effort to develop a regional deep-sea mineral policy and to provide comprehensive assistance to Pacific island countries to develop national and regional legislative, fiscal and environmental policy and guidelines to provide an operational framework to protect the interests of all stakeholders. The programme will also link with ongoing activities of the Pacific Islands Applied Geoscience Commission with regard to data rescue and the development of a deep-sea minerals resource database and work on maritime boundaries (exclusive economic zones and extended continental shelf). This integrated approach is expected to support improved decision-making and management of deep-sea marine resources in the region.

184. In addition to Governments, the involvement of private companies and industrial associations can also facilitate technical development, cooperation and human resources development in the sustainable use of non-living resources.[100] For example, the Benguela Current Large Marine Ecosystem Programme, a GEF project, financially supported a cluster of projects in Africa that tested the cumulative impact of offshore marine diamond mining on the ecosystem. The projects are pulling together the results from several previous studies and making recommendations to the Governments of Namibia and South Africa about the impact that diamond mining may have on the environment over extended periods of time.[101] The Programme also collaborated with the offshore oil and gas industry in an effort to harmonize national environmental policies and legislation for marine mining, dredging and offshore petroleum exploration and production, and to model the cumulative effects of such activities on the marine environment of the Benguela Current large marine ecosystem region (see www.bclme.org).

185. With respect to the Area, the International Seabed Authority undertakes capacity-building activities and initiatives relating to the exploration and exploitation of non-living resources, including through workshops on the scientific and technical nature of deep-seabed mining of minerals, the environmental impacts of such exploration and how the data and information collected by the various scientific institutions can be standardized and shared with its member States. The Authority also maintains a central data repository, which holds centralized public and private data acquired from various institutions worldwide on marine mineral resources. The repository also hosts a bibliographic database. In 2007, the Authority began a new programme of regional sensitization seminars on issues associated with

[100] For examples, see www.offshore-mag.com.

[101] See Church, Mohamed and Kamula, "Assessment of Africa's Capacity-Building Need" (see footnote 54), chapter 3.3.1.1.

the United Nations Convention on the Law of the Sea, on the work of the Authority and on marine mineral resources (see www.isa.org.jm; see also para. 104 above).

186. *Renewable energy*. The International Energy Agency Ocean Energy Systems Implementing Agreement undertakes various activities with regard to the development and utilization of marine renewable energy, such as tides, waves, marine currents, thermal gradients and salinity gradients in order to generate electricity, as well as for other uses. Such activities include the development of recommended practices for testing and evaluating ocean energy systems, the integration of ocean energy plants into electrical grids for distribution and transmission and the assessment of the environmental effects of and monitoring efforts for ocean wave, tidal and current energy systems (see www.iea-oceans.org). In 2009 the Ocean Energy Systems Implementing Agreement published a wave data catalogue for resource assessment and a report entitled "Ocean energy: global technology developmental status". Moreover, the Ocean Energy Systems Implementing Agreement reviews, exchanges and disseminates information on ocean energy systems. In 2008, it produced a DVD on ocean energy, regularly issued newsletters and other publications, launched a new website and continued to build its online reference library.[102]

187. Though not specifically focused on oceans, capacity-building activities and initiatives are also being undertaken by several other intergovernmental organizations and mechanisms in relation to renewable energy. For example, the International Renewable Energy Agency launched various capacity-building activities in 2009, and will continue holding workshops and training courses in selected member countries and regions.[103] Other examples include the Department of Economic and Social Affairs, UN-Energy and UNIDO.[104]

188. By conducting research and development, hosting or participating in relevant meetings at the global, regional and national levels and undertaking other relevant activities, non-governmental organizations, industrial associations and private companies actively facilitate the development and sustainable utilization of marine renewable energy. For example, representatives from these entities participated in the first and second Global Marine Renewable Energy Conferences, held in 2008 and 2009, respectively, and shared their views and experiences regarding various issues related to marine renewable energy, including the demonstration and deployment of marine renewable energy technologies. They also presented their experiences in assessing the technological challenges and lessons learned from early demonstration efforts in marine renewable energy.[105] In June 2010, the World Ocean Council will hold the Sustainable Ocean Summit, which will address priorities for cross-sectoral ocean industry actions, including in relation to offshore renewable energy.

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[102] See the 2008 annual report of the Ocean Energy Systems Implementing Agreement, available from www.iea-oceans.org.

[103] Detailed information on the capacity-building activities of the International Renewable Energy Agency is available in the draft report of the second session of the Preparatory Commission for the International Renewable Energy Agency, held in Sharm el-Sheikh, Egypt, on 29 and 30 June 2009, annex 7, para 3.2.

[104] See www.un.org/esa/desa, http://esa.un.org/un-energy and www.unido.org, respectively.

[105] Presentations at the 2008 and 2009 conferences are available from www.globalmarinerenewable.com.

7. Preservation of the marine environment and protection of the marine environment from land- and sea-based activities

(a) Land-based activities

189. Available capacity-building activities in relation to the protection and preservation of the marine environment from land-based activities range from general assistance in the implementation of applicable international instruments delivered at the global and regional levels to more specific programmes aimed at addressing specific types of pollution. The United Nations Environment Programme, primarily through its Regional Seas Programme and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, provides States with technical assistance in the implementation of the Global Programme of Action. For example, the UNEP/Global Programme of Action Coordination Office has developed an analytical framework, guidelines and checklist for the mainstreaming of marine and coastal issues into national planning and budgetary processes,[106] as well as other guidance on national and regional implementation of the Global Programme of Action.[107] To assist Governments in the process, a series of regional meetings and workshops was organized under the auspices of the Global Programme of Action to promote this approach. The United Nations Environment Programme, together with partners, is also executing and implementing a GEF-funded project to develop methodologies for transboundary water systems assessments (see para. 111 above). The Global Environment Facility reported that it had allocated $2.7 billion to programmes related to the implementation of the Global Programme of Action through its international waters focal area. For example, GEF funds programmes at the level of river basins draining to coasts, such as its Danube/Black Sea Basin programme, in order to improve water flow regimes and reduce pollution loading consistent with the Global Programme of Action (see also para. 143 above and para. 284 below).

190. Capacity-building is treated as a cross-cutting issue by the Commission on Sustainable Development and will be integrated into its discussions at its eighteenth session, to be held at United Nations Headquarters from 3 to 14 May 2010, on transport, chemicals, waste management, mining and the 10-year framework of programmes on sustainable consumption and production patterns.

191. Several Regional Seas Programmes have been involved in capacity-building activities. For example, the programme entitled "Addressing land-based activities in the Western Indian Ocean" is aimed at improving the knowledge base and establishing regional guidelines for the reduction of stress on the marine and coastal

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[106] See John Soussan, "Making mainstreaming work: an analytical framework, guidelines and checklist for the mainstreaming of marine and coastal issues into national planning and budgetary processes" (The Hague, United Nations Environment Programme Global Programme of Action Coordination Office; Stockholm, Stockholm Environment Institute, 2007). Available from www.gpa.unep.org.

[107] See, for example, United Nations Environment Programme (UNEP/Global Programme of Action (GPA) Coordination Office, "UNEP handbook on the development and implementation of a national programme of action for the protection of the marine environment from land-based activities"; UNEP/GPA Coordination Office, *Implementation of the Global Programme of Action at the Regional Level: The Role of Regional Seas Conventions and Their Protocols* (The Hague, 2006); and UNEP, *Financing the Implementation of Regional Seas Conventions and Action Plans: A Guide for National Action*, UNEP Regional Seas Reports and Studies No. 180 (The Hague, 2006). All documents are available from www.gpa.unep.org.

ecosystem by improving water and sediment quality, strengthening the regional legal basis for preventing land-based sources of pollution, developing regional capacity and strengthening institutions for sustainable, less polluting development. Other regional organizations, such as the South Asia Cooperative Environment Programme, have also conducted training relevant to the implementation of the Global Programme of Action. In this regard, the South Asia Cooperative Environment Programme noted that pollution from land-based sources was to be addressed with systematic and periodic capacity-building exercises, while effective site-specific solutions were to be shared among countries through proper information sharing.

192. United Nations Environment Programme's Regional Seas Programme and the Global Programme of Action have embarked on the development of a global initiative on marine litter, within the framework of which they have developed and implemented a number of activities on the management of marine litter.[108] In this context, the Regional Seas Programme has been active in organizing and implementing regional activities on marine litter in 12 regional seas since 2005.

193. An important emphasis has also been placed on capacity-building programmes relating to wastewater management. The Train-Sea-Coast Global Programme of Action is an active inter-agency collaboration between the UNESCO-IHE Institute for Water Education, the African, Caribbean and Pacific-European Union Water Facility, UNDP, GEF, the UNEP-Global Programme of Action and the Division for Ocean Affairs and the Law of the Sea. As at August 2009, over 1,800 experts from 67 countries in different world regions and 55 local, regional and international instructors had been trained (www.training.gpa.unep.org). The UNEP-Global Programme of Action held a total of 47 training courses on municipal wastewater management under the project on pollution reduction through improved municipal wastewater management in coastal cities in African, Caribbean and Pacific countries, with a focus on small island developing States. The training courses were carried out in 18 African, Caribbean and Pacific countries, and contributed to improving the skills and knowledge needed in project identification, planning and financing at the municipal level in water, sanitation and wastewater management.[109] In all, 773 participants were trained in 2009.

194. Capacity-building programmes have also focused on preventing harmful algal blooms. For example, as noted by the Intergovernmental Oceanographic Commission, its Intergovernmental Panel on Harmful Algal Blooms prioritized capacity-building at a meeting in 2009. The Harmful Algal Bloom Programme research programme on the Global Ecology and Oceanography of Harmful Algal Blooms (see www.geohab.info) of the Intergovernmental Oceanographic Commission and the Scientific Committee on Oceanic Research foster international cooperative research on harmful algal blooms in types of ecosystems that share common features, comparing the key species involved and the oceanographic processes that influence their population dynamics. An international Global Ecology and Oceanography of Harmful Algal Blooms programme workshop on modelling

[108] See www.unep.org/regionalseas/marinelitter; see also A/64/66/Add.1, para. 231.

[109] The training is based on the United Nations Environment Programme-World Health Organization-United Nations Human Settlements Programme-Water Supply and Sanitation Collaborative Council guidelines on municipal wastewater management and accredited by the Train-Sea-Coast programme of the Division for Ocean Affairs and the Law of the Sea.

the dynamics of harmful algal blooms was held in June 2009 to develop strategies for using observations and models and to provide student training. The Harmful Algal Bloom Programme continues its strong focus on capacity-building; it conducted two international training workshops, one capacity-enhancing expert workshop and one meeting of a regional harmful algal bloom network (the Harmful Algae in North Africa Network).

195. There are also a number of capacity-building activities and initiatives relating to integrated coastal management, which is an important tool for preventing, assessing and addressing degradation of the marine environment from land-based activities (see section IV.B.3, above).

(b) Sea-based activities

196. *Shipping activities*. In the context of its integrated technical cooperation programme, IMO has undertaken activities to strengthen regional and national capacity to prevent, control, combat and mitigate marine pollution, in particular through the implementation of training programmes, the exchange of expertise and know-how and assistance in developing, revising and updating national maritime legislation. Assistance has focused on the ratification, implementation and enforcement of the following conventions: the International Convention for the Prevention of Pollution from Ships (1973), as modified by the Protocol of 1978 relating thereto, and related rules, standards, guidelines and recommendations of the Marine Environment Protection Committee; the International Convention on Oil Pollution Preparedness, Response and Cooperation (1990) and its Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances (2000); the International Convention on the Control of Harmful Anti-fouling Systems on Ships (2001); and the International Convention on the Control and Management of Ships' Ballast Water and Sediments (2004). The International Maritime Organization also assisted States in the identification and designation of particularly sensitive sea areas; Special Areas under the International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 relating thereto; and emission control areas under the revised annex VI to that Convention (see also para. 213 below).

197. At the regional level, the European Union financed a regional project, on Euro-Mediterranean Cooperation on maritime safety and prevention of pollution from ships (SAFEMED) and its follow-up SAFEMED II project, both implemented by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea under the supervision of IMO. Both projects were developed with a view to increasing Euro-Mediterranean cooperation in the field of maritime safety and security, and preventing pollution from ships by providing technical advice and support to non-European Union Mediterranean partners. The main objective of the project was to mitigate the existing imbalance between the European Union and non-European Union Mediterranean partners in the application of maritime legislation in the region, through the promotion of an effective and uniform implementation of the relevant international conventions and rules aimed at better protecting the marine environment in the Mediterranean region by preventing pollution from ships.

198. In November 2009, IMO and the International Petroleum Environmental Conservation Association organized the regional workshop and conference of the

Global Initiative for West and Central Africa. The Global Initiative is aimed at enhancing the capacity of countries to prepare for and respond to oil spills at sea. The workshop and conference, in which the secretariat of the International Oil Pollution Compensation Funds also participated, covered a number of topics, including the following: review of progress achieved and an exchange of experiences; developing national and regional action plans; delivering training on the International Convention on Oil Pollution Preparedness, Response and Cooperation and the 1992 Protocol to amend the 1969 International Convention on Civil Liability for Oil Pollution Damage (1992 Civil Liability Convention); the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (1971) and the 1992 Protocol to amend that Convention (1992 Fund Convention); and reviewing the Protocol (to the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region) Concerning Cooperation in Combating Pollution in Cases of Emergency.

199. The Pacific Regional Environment Programme has been providing legislative drafting assistance to Pacific island countries in the field of marine pollution, as well as training in enforcing the prevention of marine pollution. It has also provided national and regional training workshops aimed at familiarization with IMO instruments related to marine pollution prevention. The South Asia Cooperative Environment Programme has organized a number of training workshops related to IMO instruments and oil spill contingency.

200. *Alien species*. Significant progress has recently been made in improving capacity-building; legal, policy and institutional arrangements; and stakeholder engagement in order to minimize the risk of the transfer of harmful organisms and pathogens in the ballast water and sediments of ships. Capacity-building activities and initiatives under the GEF/UNDP-funded GloBallast Partnerships project include regional-level training programmes, the formation of national and regional-task forces and the development of regional strategies, as well as specific country activities, such as port-specific risk assessments and drafting national regulations.[110] The project has been implementing a country profile database and a research and development directory to provide information on ballast water management activities in various countries. A public-private sector partnership, the Global Industry Alliance for Marine Biosecurity, will accelerate innovative solutions to help address ballast water issues. As noted in paragraph 283 below, a number of strategic partnerships have been developed. A number of guides have been developed, including an International Union for Conservation of Nature manual for national-level practitioners on the development of national ballast water management strategies.[111]

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[110] Contributions from the International Maritime Organization, the International Union for Conservation of Nature and the United Nations Development Programme; see also http://globallast.imo.org. More than 70 countries in 14 developing subregions have benefited from the project, which has also resulted in a number of ratifications of the International Convention on the Control and Management of Ships' Ballast Water and Sediments. See also A/64/66/Add.1, para. 248 and A/64/66/Add.2, para. 75.

[111] Contribution of the International Union for Conservation of Nature and the Department of Economic and Social Affairs. See J. Tamelander and others, "Guidelines for development of national ballast water management strategy", GloBallast Monograph Series No. 18 (London, International Maritime Organization; Gland, Switzerland, International Union for Conservation of Nature, 2010).

201. The International Union for Conservation of Nature conducted an analysis to identify obstacles in addressing marine invasive alien species, including a lack of understanding of the severity of the threat posed, insufficient information on status and trends, insufficient technical capacity to address the issue and limited public awareness. A series of projects to address different aspects of the problem, including means of reducing the risk of species introduction, was developed and implemented between 2004 and 2009 to cover certain priority issues.[112] The United Nations Environment Programme participated in and funded a training and review workshop in Bangkok in 2009 on the management of marine and coastal invasive species in the seas of East Asia, at which a draft long-term regional programme on marine and coastal invasive species was considered.

202. *Waste management*. A number of capacity-building activities are being undertaken to provide technical cooperation and assistance, including training courses, to improve the implementation of international conventions concerned with marine pollution and waste management.[113] With regard to the disposal of wastes, the governing bodies of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) and its 1996 Protocol have adopted a strategy for technical cooperation and assistance in developing countries, as capacity-building has long been viewed as crucial to the implementation and promotion of these instruments. A strategic approach has been adopted to prioritize support for States to overcome the identified legislative, institutional, technical and socio-economic barriers, and an implementation plan has been developed for a number of activities that matched funding and in-kind pledges that had been received. The project has recently received increased funding from donor countries and multilateral funding resources.[114]

203. Concerning transboundary wastes, the secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal has been working closely with its regional centres, States parties, other international organizations, the private sector and non-governmental organizations for the preparation and implementation of capacity-building and training activities linked to the implementation of the Basel Convention, including through the publication of newsletters, the issuance of technical guidelines and the organization of training programmes and workshops.[115]

204. As the secretariat of the Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (the Waigani Convention) and the regional centre for the joint implementation of the Basel and Waigani Conventions, the Pacific Regional Environment Programme has

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[112] See International Union for Conservation of Nature, "Marine invasive alien species: recent progress in addressing a growing threat to ocean biodiversity and ecosystems" (Gland, Switzerland, June 2009).

[113] Contributions of the International Atomic Energy Agency, the International Maritime Organization, the Organisation for the Prohibition of Chemical Weapons and the Pacific Regional Environment Programme.

[114] Contribution of the International Maritime Organization. See A/64/66/Add.1, para. 258, and A/63/63/Add.1, para. 199.

[115] Detailed information is contained in the Basel Convention documents, such as UNEP/CHW/OEWG/3/4 and UNEP/CHW.9/INF/3. In addition, see the activities of the Basel Convention Regional Centres, available from www.basel.int.

been providing capacity-building support to Pacific island countries in order to enable them to fulfil their obligations under the Conventions.[116] In partnership with the Japan International Cooperation Agency, the Pacific Regional Environment Programme provided training for the improvement and management of dumpsites. The Japan International Cooperation Agency cooperated at the bilateral level with many Forum Island countries for capacity-building on waste management.

205. The Organization for the Prohibition of Chemical Weapons has been providing assistance and capacity-building support to States parties in order to enable them to meet their obligations under the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, including, for example, obligations with respect to economic and technological development, and the national implementation measures required to comply with the Convention.[117]

206. The Marine Environment Laboratories of the International Atomic Energy Agency (IAEA) have been providing support to regional networks of laboratories, developing regional and interregional training courses in collaboration with IAEA member States to support the UNEP Regional Seas Programme, and providing support to IAEA member States and regional collaborations in the area of analytical data quality through proficiency tests, inter-laboratory comparisons and the production of new reference materials.[118]

207. *Liability*. The secretariat of the International Oil Pollution Compensation Funds has organized and participated in national and regional workshops providing information on liability and compensation for oil pollution damage and the operation of the Funds. Most recently, the secretariat of the Funds, in the context of the Interspill 2009 Conference and Exhibition in Marseille, France, conducted a workshop aimed at enhancing the understanding of the international regime for compensation for oil pollution damage from tankers, which included solving practical compensation issues based on past experience and the present policies of the Funds.

208. In the context of its capacity-building activities related to the International Convention for the Prevention of Pollution from Ships and its Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances (see paras. 196 and 198 above), and associated with the aspect of the reimbursement of costs of mutual aid in case of a major pollution incident, assistance was provided by IMO to address provisions on liability and compensation for damage resulting from accidental marine pollution under the 1992 Civil Liability Convention and the 1992 Fund Convention.

8. Climate change and oceans

209. Recent discussions in international forums have highlighted the significant role of the oceans in the global carbon cycle, and the importance of enhancing natural carbon sinks in coastal zones.[119] These discussions have emphasized that

[116] See the contribution of the Pacific Regional Environment Programme for detailed information, including the differences between the Basel Convention and the Waigani Convention.

[117] See the contribution of the Organisation for the Prohibition of Chemical Weapons for detailed information.

[118] See the contribution of the International Atomic Energy Agency for detailed information.

[119] Contribution of the Intergovernmental Oceanographic Commission. See also *Blue Carbon: the Role of Healthy Oceans in Binding Carbon*, which was produced by three United Nations agencies (UNEP, Intergovernmental Oceanographic Commission-UNESCO and FAO).

close to 50 per cent of the world's population living in coastal areas would suffer disproportionately from ocean warming, sea-level rise, extreme weather events, and ocean acidification. Recent reports have also emphasized the adverse impact of climate change on human rights (see also para. 310), as well as the possible security implications of climate change.[120]

210. As described in the Bali Action Plan, mitigation, adaptation, technology and financial resources have become the four key building blocks for strengthening the global response to climate change.[121] In this regard, at its fifteenth session, the Conference of the Parties to the United Nations Framework Convention on Climate Change, in December 2009, took note of the Copenhagen Accord, which demonstrated political will on the part of the international community to further actions against climate change, including by mobilization of resources for short-term and long-term financing to support such actions in developing countries.[122]

211. There is a broad range of capacity-building activities that addresses climate change and the oceans, of which some recent examples are presented in this section. A number of these activities are focused on assessing the impact of climate change on the oceans, including marine ecosystems (also see paras. 119-123).[123] The secretariat of the Pacific Community is leading work in the Pacific region on the impact of climate change on fisheries resources, and coordinating a major assessment of the vulnerability of Pacific Islands fisheries to climate change. Early in 2010, a project to assist small island developing States to monitor the impact of climate change on their coastal fisheries, and the effectiveness of adaptation measures, will also be launched. Some preliminary modelling of the effects of climate change on oceanic fisheries resources has already been carried out and will be extended. In the Middle East, IUCN is planning to organize a training workshop together with the Islamic Organization for Education, Science and Culture in Aqaba, Jordan, on the impact of climate change on the marine ecosystem.

212. The United Nations University-Institute of Advanced Studies Traditional Knowledge Initiative is undertaking studies on the impact of climate change and climate change responses on indigenous peoples living in highly fragile ecosystems, such as low-lying coastal areas and small island States. The studies will include climate change impact experienced by communities, the meaning of climate change to communities, the impact of mitigation measures on communities, and climate change response measures reflecting the view of traditional communities. The United Nations University-Institute of Advanced Studies is compiling case studies on the role of traditional and local knowledge in climate change adaptation in marine and coastal environments, the first set of which will be presented at the Fifth Global Conference on Oceans, Coasts and Islands in May 2010.

213. Other capacity-building activities focused on mitigating the impact of climate change in the context of ocean-related activities. IMO assistance to regions and States has focused on assistance in the uniform application of IMO policy for the

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[120] A/64/350. For additional information, see the "Gateway to the UN System's work on Climate Change", at: http://www.un.org/wcm/content/site/climatechange/gateway.

[121] See FCCC/CP/2007/6/Add.1. Also see A/64/66/Add.1, para. 346, A/63/63, paras. 360-361, and A/62/66/Add.1, paras. 236-238.

[122] See http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf.

[123] Contributions of the International Union for Conservation of Nature, the North Atlantic Salmon Conservation Organization, the Secretariat of the Pacific Community and UNU-IAS.

reduction of greenhouse gas emissions from ships.[124] GEF large marine ecosystems projects focus on coastal and marine fisheries, as well as integrated coastal management, pollution reduction, and habitat restoration and protection, the latter of which includes the "blue forests" of coastal habitat of marine systems that provide for storm protection, community livelihoods, and protein for food security, as well as services in sequestering carbon for mitigating global warming (see, for example, paras. 140-150 above).

214. The majority of reported capacity-building activities, however, focused on efforts to adapt to projected climate change.[125] In this context, a number of activities are aimed at the development of ecosystem-based adaptation strategies to increase the resilience of coastal and marine ecosystems to the adverse impacts of climate change. For example, in 2009 UNEP supported a national workshop on integrated environmental assessment and ecosystem-based management, in Kimbe Bay, Papua New Guinea, to, inter alia, organize and initiate a national integrated environmental assessment and climate change outlook (see also para. 175 above). The project will contribute to the Environment Climate Change Outlook report and help train national government agencies in integrated environmental assessment tools and methodologies to identify key environmental issues, key drivers and possible management responses.[126]

215. The Intergovernmental Oceanographic Commission of UNESCO is implementing a four-year regional project, funded by GEF, on adaptation to climate change in coastal areas of West Africa, which will contribute to a better understanding of shoreline change induced by climate variability in five participating States, with an emphasis on the impact of climate change and the formulation and implementation of appropriate adaptation and remediation strategies within the wider context of integrated coastal area management. The International Union for Conservation of Nature developed a project on management of climate change impact on coral reefs and coastal ecosystems in tsunami-affected areas of the Andaman Sea and South Asia. Among its objectives, the project aims to improve the management of coastal ecosystems, develop alternative livelihood projects for families in coastal areas, and improve education and awareness of the impact of human activities on coastal ecosystems and thus strengthen the capacity to mitigate the impact. Several thousand individuals benefited through livelihood diversification, socio-economic monitoring, ecological research, management advice, education and awareness and other training, and the project produced over 30 significant technical outputs.[127]

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[124] IMO contribution. For further information, see A/64/66/Add.2, paras. 71-72, A/64/66/Add.1, paras. 349-353, and A/63/63/Add.1, paras. 271-277.

[125] Contributions of the Convention on Biological Diversity Secretariat, Convention on Migratory Species of Wild Animals, GEF, IAEA, Intergovernmental Oceanographic Commission, IUCN, Partnerships in Environmental Management for the Seas of East Asia, UNEP, UN-Habitat and UNU-IAS.

[126] Contribution of UNEP. The Environment Climate Change Outlook process will focus on climate change vulnerability assessments and impact, mainstreaming and prioritizing of climate change adaptation options, using ecosystem-based adaptation.

[127] See Tamelander, J. 2009. CORDIO Asia Final Report — *Management of Climate Change Impacts on Coral Reefs and Coastal Ecosystems in Tsunami-affected Areas of the Andaman Sea and South Asia*. Project completion report. IUCN Global Marine Programme 2009. IUCN, Gland, Switzerland, available at www.iucn.org.

216. In 2009, the East Asian Seas Congress focused on local implementation and good practices in coastal and ocean governance and included a number of workshops on the need for the local communities and the region to adapt to climate change. These included, in particular, a workshop on meeting challenges of climate change at the local level through ICM, and a workshop on the impact of climate change at the coastal and ocean areas of the East Asian Seas Region.

217. Other activities have focused on enhancing the capacity of developing States to adapt to climate change more generally. In cooperation with other partners, IOC is implementing a project on improving emergency response to ocean-based extreme events through coastal mapping capacity-building in the Indian Ocean. The UN-Habitat Cities and Climate Change Initiative continues to build capacities of local governments and stakeholders in coastal cities by developing, adapting and making available methodologies that provide guidelines on how to cope with climate change. The initiative has a strong focus on poverty reduction strategies and seeks to support the development of innovative approaches for the implementation of climate change policies and strategies. The IAEA Marine Environment Laboratories have expanded their activities to support member States in capacity-building for the sustainable development of the oceans and the research capabilities to investigate and adapt to the impact of climate change on the oceans. In this regard, IAEA has developed experimental systems using nuclear techniques to study the effects of ocean acidification on commercially important organisms, such as fish larvae and molluscs and key species in marine food webs in polar and temperate waters, which were being transferred to developing member States, to support national assessments of ocean acidification impact and adaptation strategies.

218. UNCTAD has recently focused on the implications of climate change for maritime transport through its analytical work related to formulation and review of policy and legislation in the field of maritime transport and logistics, especially focused on addressing challenges and issues of concern for developing countries, least developed countries and small island developing States. A multi-year expert meeting on transport and trade facilitation, held in 2009 in Geneva, was the first of its kind to deal with the multiple challenges of climate change for maritime transport in an integrated manner, focusing both on mitigation and adaptation, as well as on related issues, such as energy, technology and finance. Experts highlighted the central role of technology and finance, and the need for international cooperation between scientists and engineers, industry, international organizations and policymakers in relation to the preparation and design of adequate adaptation measures. As a result of this initiative, the International Association of Ports and Harbours decided to undertake necessary studies and provide assistance to ports to effectively prepare for the impact of climate change.

9. Maritime transportation and navigation

219. The shipping industry plays a crucial role to world economy. For example, in 2009, the top 10 major open and international registries, which are located mainly in developing countries, accounted for 55.11 per cent of the world fleet.[128] Of the remaining tonnage, 25.21 per cent was registered in developing countries, 18.23 per

[128] UNCTAD, *Review of Maritime Transport, 2009* (United Nations publication, Sales No. E.09.II.D.11). The top 10 registries are Antigua and Barbuda, Bahamas, Bermuda, Cyprus, Isle of Man, Liberia, Malta, Marshall Islands, Panama, and Saint Vincent and the Grenadines.

cent in developed countries, 1.06 per cent in countries with economies in transition and 0.39 per cent from other countries. Presented below is an overview of recent capacity-building activities and initiatives based mainly on the contributions to the present report. Industry and non-governmental organizations have also been engaged in capacity-building activities in this area (see, for example, para. 233). Capacity-building activities/initiatives in areas closely related to maritime transportation and navigation, such as the protection and preservation of the marine environment, climate change and maritime security, are presented in sections IV.B.7(b), 8 and 10 of the present chapter.

220. As a specialized agency within the United Nations system, IMO has a global mandate in the field of safety of navigation and prevention of marine pollution from vessels. The IMO capacity-building activities are developed and delivered through its Integrated Technical Cooperation Programme, which focuses on assisting developing countries in building up their human and institutional capacities for uniform and effective compliance with the IMO regulatory framework. In the last decade, several new theme areas have been identified and included in that Programme, such as promotion of the linkage between the Programme and the Millennium Development Goals.[129] Meeting the special needs of Africa, small island developing States and least developed countries has become the key objectives of the Integrated Technical Cooperation Programme. For example, a new global programme on support to small island developing States and least developed countries for their special shipping needs was developed to address the issue of sustainable livelihoods and poverty alleviation through capacity-building activities in the shipping sector.

221. UNCTAD contributes to capacity-building in ocean affairs and the law of the sea through its analytical work related to formulation and review of policy and legislation in the field of maritime transport and logistics, especially focusing on addressing challenges and issues of concern for developing countries, least developed countries and small island developing States. GEF also financially supports projects that address maritime transport/port management.

222. The eighteenth session of the Commission on Sustainable Development (see para. 190) will undertake a review and assessment of progress made in incorporating sustainable development decisions on a number of issues, including transport. Capacity-building will be integrated into these discussions as a cross-cutting issue.

(a) Maritime labour

223. The IMO Integrated Technical Cooperation Programme has played an important role in human resource development within developing countries. IMO established the World Maritime University, in Malmö, Sweden, and the IMO International Maritime Law Institute, in Valletta, Malta, both of which offer training in maritime disciplines. To date, a total of 2,855 students from 158 States and territories around the world have graduated from the WMU, and 518 lawyers from some 116 States and territories have obtained their Master's degrees from the International Maritime Law Institute. For the 2010-2011 biennium, the Integrated Technical Cooperation Programme includes an additional programme to enhance

[129] IMO Assembly resolution A.1006(27) on the linkage between the Integrated Technical Cooperation Programme and the Millennium Development Goals.

training capabilities relating to the revised International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, in anticipation of the adoption of amendments to the Convention and Code, at a conference scheduled to be held in Manila, in June 2010.[130]

224. ILO promotes capacity for the implementation by flag States of labour standards for seafarers and fishers. It developed guidelines for flag State and port State inspections to assist in the implementation of the 2006 Maritime Labour Convention,[131] and a course for national trainers of inspectors to carry out such inspections. Assistance was also provided to support legislative gap analysis and national and regional implementation workshops. The development of model laws is planned for 2010.

225. With regard to the 2007 Work in Fishing Convention (No. 188), ILO held regional seminars to promote knowledge of the Convention and implementation strategies. Training courses will be developed for flag and port State inspectors. Other activities include legislative gap analysis and national implementation reviews. ILO emphasized that its activities would also involve strengthening relevant competent authorities, and strengthening representative organizations of fishing vessel owners and fishers.

(b) Transport of dangerous goods

226. As part of the Integrated Technical Cooperation Programme, IMO has focused on the development and production of an interactive e-learning package for the International Maritime Dangerous Goods Code class 7 radioactive materials.[132] The package will be based on the latest version of the Code, to be supplemented by the IAEA Training Manual. It will enable distance-learning and remote testing to confirm the level of knowledge acquired by participants.

227. IAEA is expected to complete the Action Plan for the Safety of Transport of Radioactive Material in 2010, which has resulted in enhanced dialogue between coastal and shipping States. With respect to the denials of shipment of radioactive materials, a series of regional workshops have been held by IAEA since 2007.[133] In February 2010, IAEA hosted a series of consultancy and technical meetings focusing on the denial of shipment of radioactive material, bringing together regulators, members of industry and other international organizations. The meetings will evaluate previous action taken and attempt to provide guidance and training to assist in the reduction of denial occurrences.[133]

(c) Safety of navigation

228. The International Hydrographic Organization has strengthened its capacity-building programme,[134] encouraging bilateral and regional cooperation on hydrographic and related matters in order to better support its member States to develop and enhance their hydrographic infrastructure. IHO considers there to be

[130] IMO document TC 59/16.

[131] ILO (2009) Guidelines for flag State inspections under the Maritime Labour Convention, 2006; and ILO (2009) Guidelines for port State control officers carrying out inspections under the Maritime Labour Convention, 2006.

[132] IMO document, TC 59/2.

[133] See www-ns.iaea.org.

[134] A/64/66, para. 123.

three phases in the development of hydrographic capabilities for a State: (a) maritime safety information management covering the ability to collect and disseminate hydrographic information to regional centres for access by end-users; (b) hydrographic survey capabilities, which covered the ability to conduct such surveys; and (c) cartographic production capabilities, which covered the ability to transform hydrographic data into nautical charts.

229. The International Hydrographic Organization capacity-building programme has concentrated on conducting technical and advisory visits to raise awareness within Governments of the importance of hydrography and the benefits of establishing a national hydrographic agency, and conducting analyses of the current national hydrographic status. These visits were a precursor to the three developmental phases mentioned above. IHO has also been organizing short courses, seminars and workshops on such topics as maritime safety information, chart production, surveying, and hydrographic aspects of maritime boundaries. During 2010, it plans to deliver additional courses covering all three phases of hydrographic capability development.

230. With respect to access to new technologies, the International Hydrographic Organization called for bilateral or multilateral agreements so that developing countries could have access to basic instruments, equipment and software as these were critical elements for States as part of the overall capacity-building process.

231. In June 2009, the IMO Maritime Safety Committee approved a detailed plan of work for an "e-navigation" strategy to be completed during 2012.[135] As part of its implementation process, gap analyses would focus on technical, regulatory, operational and training aspects needs, which are scheduled to be completed by 2010 (see also para. 220).[136]

232. *Straits for international navigation.* Through the Cooperative Mechanism, which was established by the three States bordering the Straits of Malacca and Singapore and comprised of a Cooperation Forum, a Project Coordination Committee and an Aids to Navigation Fund, various activities to enhance safety, security and environmental protection in the Straits have been undertaken. The informal joint technical arrangement between the States bordering the Straits and the IMO on safety and environmental protection in the Straits was signed at the second Cooperation Forum in Singapore in October 2009.[137] An IMO Malacca and Singapore Straits Trust Fund (IMO Fund) was also established by the Secretary-General of IMO as a complementary mechanism to the Cooperative Mechanism.[138] For instance, the IMO Fund has dispersed contributions to a project under the Cooperative Mechanism relating to automatic identification system transponders on small ships.[139]

233. The GEF/World Bank provided a grant in 2005 to IMO to implement the follow-on Marine Electronic Highway Demonstration Project in the Straits of Malacca and Singapore, which was expected to be completed in June 2011. This

[135] MSC 85/26/Add.1, annex 20, MSC 86/23/4, MSC 86/26, para. 23.26, and A/63/63/Add.1, para. 61.

[136] MSC 85/26/Add.1, annex 21.

[137] IMO document C/ES/D, para. 12.5.

[138] See, for example, A/63/63/Add.1, paras. 66-69, and A/64/66/Add.1, paras. 88-90.

[139] IMO document C/ES 25, para. 9.

project seeks to establish a regional mechanism in the Straits for enhanced maritime safety and marine environment protection with a sustainable financial component in a cooperative arrangement with Indonesia, Malaysia and Singapore and partnership with the Republic of Korea, the International Hydrographic Organization, the International Association of Independent Tanker Owners and the International Chamber of Shipping. The project acts as a technological network and cooperative partnership.

(d) Flag State implementation and port State control

234. The Voluntary Member State Audit Scheme of IMO is intended to provide a comprehensive and objective assessment of how effectively a State administers and implements IMO mandatory instruments covered by the Scheme. In this context, the Scheme can provide many benefits, including by identifying where capacity-building activities would have the greatest effect. States can receive valuable feedback to improve their own capacity, and generic lessons from the audits can be widely shared.

235. The IMO ITCP contains programmes to provide support to member States, including funding for experts to assist States on matters related to the audit, to meet part of the cost of the audit, and the general availability of technical assistance to address findings from audits. As of 8 February 2010, a total of 37 audits have been completed; 51 States have volunteered to be audited, and 164 individuals have been nominated for inclusion in the roster of auditors.[140] Since the commencement of the auditors' training course under the Integrated Technical Cooperation Programme, 273 individuals from 136 countries have also been trained through 19 regional courses.[141] In 2010 and 2011, assistance will continue to focus on the implementation of the Scheme, with emphasis on the training of auditors from developing countries in preparation for, and participation in, the Audit Scheme.

236. In 2009, the IMO Assembly adopted resolution A.1018(26) on further development of the Voluntary IMO Member State Audit Scheme, which would institutionalize the Scheme through a phased-in process by the introduction of appropriate requirements in the relevant mandatory IMO instruments.[142] The resolution provides a time frame that could lead to the adoption of amendments to these instruments in 2013, for entry into force in January 2015, and also requests the Secretary-General of IMO to take action within the Integrated Technical Cooperation Programme to assist States in responding to their duties under the Scheme and to build capacity aimed at addressing related needs.

237. In regard to port State control, IMO has been hosting workshops for secretaries and directors of information centres of all the regional port State control regimes. The workshops were funded by the Technical Co-operation Fund of the Integrated Technical Cooperation Programme and aimed at providing support to regional port State control regimes by establishing a platform for cooperation and a forum to meet and exchange ideas and experiences. The workshops also aimed at encouraging harmonization and coordination of port State control activities and the development of practical recommendations which could be forwarded to IMO for further examination by its relevant committees and subcommittees. IMO has also provided

[140] IMO document, TC 60/6.

[141] Ibid. Eight regional training courses for auditors are scheduled to take place during 2010-2011.

[142] IMO Assembly resolution A.1018(26) of 25 November 2009, entitled, "Further development of the Voluntary IMO Member State Audit Scheme".

assistance in the establishment of regional port State control organizations and agreements on port State control.

(e) Rescue at sea

238. Effective maritime search and rescue services around the globe are required to ensure safety at sea, particularly in developing countries in Africa (see para. 49). Under the Integrated Technical Cooperation Programme, IMO has assisted coastal States in Eastern and Southern Africa to establish maritime search and rescue coordination centres, and ongoing assistance is being provided to Central, West and North African States bordering the North Atlantic Ocean.[143] The International Maritime Safety, Security and Environment Academy based in Genoa, Italy, has conducted courses covering search and rescue.

239. The capacity-building activities of IOM include an annual course on International Migration Law, which addresses the legal framework governing migration, including the rights and responsibilities of States and migrants.[144] One of the topics of the course is the legal framework regarding rescue of persons in distress at sea.

10. Maritime security

240. Capacity-building assistance in the field of maritime security can take many different forms. At the global level, assistance is currently aimed primarily at facilitating participation in, and implementation of, relevant maritime security instruments. This includes the development of guidance materials and dissemination of best practices, as well as the delivery of training courses, workshops and technical assistance. There has also been an emphasis on actively assessing the level of implementation of applicable norms, rules and standards with a view to encouraging more effective implementation and developing tailored capacity-building assistance. Cooperation at the regional and bilateral levels can also increase collective capacity to address threats to maritime security, particularly with respect to information-sharing and enforcement.[145]

241. Although bilateral partnerships are a particularly important source of capacity-building assistance for maritime security,[146] including in the context of South-South cooperation, there is limited information available on the scope of such cooperation. Non-governmental organizations and industry groups and associations have played an important role in fostering the implementation of maritime security instruments, including guidelines, through the widespread dissemination of information and

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[143] See also A/64/66/Add.1, para. 115.

[144] See www.iom.int/jahia/Jahia/pid/1793.

[145] For example, the planned subregional integrated coast guard network in West and Central Africa, which provides for subregional cooperation to combat a wide range of maritime offences, will allow States to cooperate to maximize their collective patrolling capacity. See Maritime Organization of West and Central Africa, www.mowca.org. The European Union is also exploring options for strengthening cooperation, see, for example, Communication from the Commission to the Council and the European Parliament, the European Economic and Social Committee and the Committee of the Regions — "Towards the integration of maritime surveillance: A common information sharing environment for the EU maritime domain".

[146] For example, Japan dispatched members of its Coast Guard to Oman and Yemen in December 2009 to assist local officials in addressing piracy concerns in waters off the Horn of Africa. See http://www.unhcr.org/refworld/docid/49fac6822.html.

advice, the preparation of guidance material and training courses and taking other measures to promote best security practices.[147]

242. Capacity-building activities and initiatives in the field of maritime security may take a broad approach to the topic or target specific types of crimes at sea. For instance, the IMO provides assistance to States in the implementation of maritime security instruments under its purview, which are relevant to addressing a broad range of threats to maritime security.[148] Activities of the United Nations Office on Drugs and Crime (UNODC), the Counter-Terrorism Executive Directorate and the Office for Disarmament Affairs of the United Nations Secretariat,[149] on the other hand, tend to deal with specific maritime security threats, as outlined below.

(a) Piracy and armed robbery against ships

243. The Security Council,[150] the General Assembly[151] and the Contact Group on Piracy off the Coast of Somalia[152] have all underscored the need for improving the capacity of States to counter piracy. Recognizing this need, States and intergovernmental organizations have undertaken capacity-building activities at the global and regional levels, as well as through bilateral cooperation. Given the recent attention that has been focused on addressing piracy off the coast of Somalia, a host of innovative and far-reaching capacity-building initiatives have recently been undertaken in that region.

244. At the global level, IMO has, since 1988, been implementing a long-term anti-piracy project. Phase one consisted of a number of regional seminars and workshops attended by government representatives from States in piracy-infested areas of the world; while phase two consisted of a number of evaluation and assessment missions to different regions. IMO seeks to foster the development of regional agreements on implementation of counter-piracy measures.[153] IMO has also adopted a series of documents which provide guidance on how to prevent, prepare for, and react to, incidents of piracy and armed robbery against ships.[154]

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[147] See, for example, "Best Management Practices to Deter Piracy in the Gulf of Aden and off the Coast of Somalia", available at http://www.marisec.org/Piracy-BMPVersion2%2821Aug09%29.pdf.

[148] In this regard, the IMO Integrated Technical Cooperation Programme has included, since 2002, the Global Programme on Enhancement of Maritime Security, through which some 6,000 persons have been trained through 68 country needs assessment and advisory missions, 69 national and 51 regional seminars, workshops or courses to implement special measures developed by the IMO to enhance maritime security for ships and ports.

[149] The Office for Disarmament Affairs reported on the contributions of the Security Council Committee established pursuant to resolution 1540 (2004) to capacity-building, which included a series of Office for Disarmament Affairs-organized regional workshops on capacity-building in the area of border and export controls.

[150] See, for example, Security Council resolutions 1897 (2009), paras. 5, 11, 13 and 14, and 1851 (2008), paras. 5 and 8.

[151] See, for example, General Assembly resolution 64/71, paras. 69 and 73.

[152] See, for example, Communiqué of the Contact Group on Piracy off the Coast of Somalia following its fifth plenary meeting, 28 January 2010.

[153] See www.imo.org.

[154] See www.imo.org. Most recently, IMO adopted a revised version of its Recommendations to Governments for preventing and suppressing piracy and armed robbery against ships, Guidance to shipowners and ship operators, shipmasters and crews on preventing and suppressing acts of piracy and armed robbery against ships, and Code of Practice for the Investigation of the Crimes of Piracy and Armed Robbery against Ships.

245. The Division for Ocean Affairs and the Law of the Sea provides assistance to States in the uniform and consistent application of the provisions of the United Nations Convention on the Law of the Sea relating to the repression of piracy under international law, as part of its mandate (see para. 124). IMO, UNODC and the Division for Ocean Affairs and the Law of the Sea are currently cooperating on a compilation of national legislation on piracy, to serve as a resource for States and intergovernmental organizations.[155]

246. At the regional level, States develop their counter-piracy capacities by sharing information, best practices and in some cases, resources through ad hoc, informal or more formal arrangements.[156] For example, the Information Sharing Centre set up by the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia undertakes initiatives that enhance the ability of Contracting Parties to respond to incidents of piracy and armed robbery, including exercises, training workshops and technical assistance programmes that share best practices.[157] The Information Sharing Centre, together with other organizations, will organize the Piracy and Sea Robbery Conference 2010, to be held on 29 April 2010 in Singapore.[158]

247. Piracy and armed robbery against ships off the coast of Somalia is exacerbated by the relative lack of capacity of States in the region, and in particular Somalia, to effectively combat such crimes. The Security Council has encouraged States to "work to enhance the capacity of relevant States in the region to combat piracy, including judicial capacity".[159] An overview of some of the activities undertaken by States and intergovernmental organizations is found in the reports of the Secretary-General submitted pursuant to Security Council resolution 1846 (2008).[160]

248. The Djibouti Code of Conduct concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden, which serves as a non-binding cooperative mechanism for States in the region, was concluded under IMO auspices on 29 January 2009.[161] The Code includes provisions relating to capacity-building, whereby signatories undertake to cooperate in the repression of piracy and armed robbery and to share information via national focal points and information centres. The Code also envisages the establishment of a regional training centre. IMO has undertaken a broad capacity-building initiative to assist signatories to the Djibouti Code in its implementation.[162] In this regard, a multi-donor Djibouti Code Trust Fund has also been established.

249. The Contact Group on Piracy off the Coast of Somalia, which was established on 14 January 2009 to facilitate discussion and coordination of actions among States and organizations to suppress piracy off the coast of Somalia, plays a capacity-building role by providing a forum for the exchange of information, views and best

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[155] See General Assembly resolution 64/71, para. 75.

[156] See, for example, A/63/63, para. 62; A/63/63/Add.1, paras. 91-92 and 100-101.

[157] See www.recaap.org/index_home.html.

[158] See www.recaap.org/Conference/index.asp.

[159] Security Council resolution 1851 (2008), para. 8.

[160] S/2009/146 and S/2009/590.

[161] It has been signed by Comoros, Djibouti, Egypt, Ethiopia, Kenya, Madagascar, Maldives, Seychelles, Somalia, the Sudan, the United Republic of Tanzania and Yemen.

[162] For example, IMO convened a workshop in Seychelles in October 2009 and plans to organize more workshops and meetings in 2010 in furtherance of the activities pursuant to the Code.

practices. In particular, a Regional Counter-Piracy Capability Development Needs Assessment and Prioritization Mission to East Africa and the Gulf of Aden was recently conducted under the auspices of Working Group 1 of the Contact Group.[163] In addition, Working Group 2 of the Contact Group is currently developing a practical set of tools (a legal toolkit) to serve as a legal resource for States and relevant organizations. On 28 January 2010, the Contact Group adopted revised terms of reference for a United Nations Voluntary Trust Fund to support its anti-piracy initiatives, with UNODC as Fund Manager.[164] The Department of Political Affairs, the Department of Peacekeeping Operations, the Office of Legal Affairs of the Secretariat of the United Nations, UNODC and IMO have all been active contributors to the work of the Contact Group.[165]

250. With the support of the Department of Political Affairs, the Transitional Federal Government of Somalia with the regional authorities of Puntland and Somaliland, established a technical coordination mechanism for counter-piracy. At its first meeting (Djibouti, 3 to 5 February 2010), convened by IMO in cooperation with the United Nations Political Office for Somalia, Department of Political Affairs, and supported by UNODC, Division for Ocean Affairs and the Law of the Sea and INTERPOL, participants developed a draft workplan for counter-piracy, identifying priority activities for the subsequent six months.

251. In implementing its Counter-Piracy Programme, UNODC has worked with a number of States in the region, principally Kenya and Seychelles, to provide support to the police, courts, prosecutors and prisons to ensure that the trials of suspects are effective, efficient and fair. It has reviewed legislation of States in the region and agreed on action plans to amend it, where necessary; supported prosecutors through training and office improvements; developed court facilities; delivered witnesses to trial; substantially improved prison conditions and reduced overcrowding; and improved police practices and evidence handling. Additionally, with the support of other agencies, UNODC has assisted with the development of the Somali custodial corps and the building of 10 prisons in Somaliland and Puntland. This will allow piracy suspects held in the prisons of Kenya, Seychelles and other States in the region to be transferred back to Somalia to serve their sentences, if convicted, with the agreement of all concerned.

252. The International Criminal Police Organization (INTERPOL) is fostering an increase in the exchange of intelligence and building police capacity, as well as providing investigative and operational police support in the repression of piracy, to States in the region. It also hosted a meeting on maritime piracy financing in January 2010.

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[163] The Contact Group, at its fifth plenary meeting agreed that report of this mission was to provide the basis for further detailed work to address regional counter-piracy capability development needs, but that this would not overlap with the capacity-building work being undertaken by IMO and UNODC.

[164] See Communiqué of the Contact Group following their fifth plenary meeting on 28 January 2010 and Communiqué of the Contact Group following their fourth plenary meeting on 10 September 2009.

[165] S/2009/590, para. 14.

(b) Terrorist acts involving shipping, offshore installations and other maritime interests

253. Preventing terrorist acts involving shipping, offshore installations and other maritime interests continues to be a priority for capacity-building activities in the maritime security sector. Available assistance from intergovernmental organizations covers both the ratification and implementation of relevant maritime security instruments. In addition to legislative enactments, implementation efforts aim at putting in place practical measures to improve port security, ship security and the monitoring, control and surveillance capabilities of States, so as to prevent possible terrorist acts. Bilateral assistance plays a vital role in supplementing the efforts of intergovernmental organizations to meet the specific needs of States in this regard.[166]

254. Through its Global Programme on Maritime Security, IMO assists States in conducting maritime security needs assessments and provides training through national and regional seminars, workshops or courses. These activities seek to improve maritime security through the understanding and implementation of the maritime security provisions of the International Convention for Safety of Life at Sea, chapter XI-2, and its International Ship and Port Facility Security Code, as well as the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, the 1988 Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf, and the 2005 Protocols.[167] IMO also provides assistance to States in the implementation of the long-range identification and tracking of ships.[168]

255. The Counter-Terrorism Committee of the Security Council works with Member States to assess their implementation of Security Council resolution 1373 (2001), including its requirement for the ratification of the international counter-terrorism conventions and the codification in their domestic legislation of the offences specified in those instruments, which include the Suppression of Unlawful Acts against the Safety of Maritime Navigation Convention and the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf Protocol as well as their 2005 Protocols. The Counter-Terrorism Executive Directorate assessments also cover implementation of chapter XI-2 of the International Convention for Safety of Life at Sea and its International Ship and Port Facility Security Code; and other practical measures relating to border control, law enforcement and international cooperation in combating terrorist crimes, including those committed at sea. The Counter-Terrorism Committee and the Counter-Terrorism Committee Executive Directorate seek to identify priority areas in which States may benefit from technical assistance, and endeavour to facilitate the delivery of such assistance in order to enable States to take the necessary legal,

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[166] For example, the United States of America cooperates with other States to improve port security as part of its Container Security Initiative. The Japanese Coast Guard provided capacity-building services and training seminars to authorities from States that border the Strait of Malacca. Since 2002, Japan has offered technical assistance to support local police in Indonesia and has provided training to coast guard counterparts from the Philippines.

[167] For example, IMO is planning to develop a maritime security manual for the implementation of the provisions of the International Convention for the Safety of Life at Sea, chapter XI-2, and the ISPS Code and model legislation for the implementation of the provisions of the International Convention for the Safety of Life at Sea, chapter XI-2, and the ISPS Code in 2010. See MSC 87/16.

[168] www.un.org/terrorism/pdfs/CT_factsheet_March2009.pdf.

administrative and practical measures to combat terrorist acts, including those committed at sea.

256. As part of its global counter-terrorism work, UNODC assists States in becoming parties to and implementing international counter-terrorism conventions. In this regard, it develops guidance materials, such as legislative guides, delivers training courses and workshops and provides technical assistance. For example, UNODC trains national criminal justice officials to better understand and make use of the international legal instruments against terrorism. UNODC aims to assist States to elaborate national counter-terrorism laws in accordance with international standards and to promote international cooperation in related criminal matters, in particular with regard to extradition and mutual legal assistance.

257. Capacity-building activities are also being undertaken by regional organizations. For example, the Inter-American Committee against Terrorism Secretariat of the Organization of American States (OAS) serves as a clearing house of information and technical assistance on counter-terrorism policy and programmes on behalf of OAS member States.[169] The Maritime Security programme of the OAS Inter-American Committee seeks to strengthen the capacity of member States to effectively comply with the security requirements of the International Ship and Port Facility Security Code for protection of port facilities and cruise ship terminals, by strengthening counter-terrorism and law enforcement capabilities within the port facilities and enhancing coordination among the relevant government authorities responsible for maritime security.[169] Other recent capacity-building activities at the regional level include the UNODC Workshop for member States of the Association of Southeast Asian Nations on "Developing an integrated approach to maritime security through the counter-terrorism conventions, criminal and international law: legal perspectives, capacity-building", held in Singapore in June 2009.

(c) Transnational organized crime

258. Transnational organized crime covers a variety of crimes which can be committed at sea by organized criminal groups, including illicit traffic in narcotic drugs and psychotropic substances by sea and smuggling and trafficking of persons by sea. Capacity-building activities in this regard are aimed at assisting States in implementing relevant international instruments, such as the 1988 United Nations Convention against the Illicit Traffic in Narcotic Drugs and Psychotropic Substances and the United Nations Convention on Transnational Organized Crime and its Protocols,[170] as well as improving port security, container security and enforcement capacity. Bilateral cooperation in combating transnational organized crime also contributes to capacity development in this field by facilitating the transfer of intelligence and knowledge of modern law enforcement techniques and best practices.[171]

259. UNODC promotes the ratification of the United Nations Convention on Transnational Organized Crime and its Protocols and assists Member States in their

[169] www.cicte.oas.org.

[170] The Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children; the Protocol against the Smuggling of Migrants by Land, Sea and Air; and the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, their Parts and Components and Ammunition.

[171] See, for example, "U.S. Coast Guard Team Teaches Port Security to Zambian Personnel", at www.africom.mil.

implementation. It has also developed a number of tools to facilitate international cooperation in combating transnational organized crime. For example, UNODC is promoting the implementation of the Protocol against the Smuggling of Migrants by Land, Air and Sea supplementing the United Nations Convention. In 2010, it will publish a Model Law against Smuggling of Migrants, which includes provisions addressing smuggling of migrants by sea, prepared in consultation with the Division for Ocean Affairs and the Law of the Sea. At the regional level, the UNODC Global Container Programme also contributes to combating the smuggling of migrants at sea by providing legislative assistance, training and capacity-building in North and West Africa.

260. *Illicit traffic in narcotic drugs and psychotropic substances by sea.* There are a number of ongoing capacity-building programmes and initiatives aimed specifically at assisting States in combating illicit traffic in narcotic drugs and psychotropic substances by sea. These relate principally to the implementation of relevant provisions of the Drugs Convention, port and container security and maritime law enforcement.

261. For example, UNODC developed a Maritime Drug Law Enforcement Guide, a Practical Guide for competent national authorities under article 17 of the Drugs Convention and other guidance materials to assist States in implementing the Drugs Convention.[172] It also provides training at the regional level and technical assistance in this regard.

262. With regard to port and container security, the Global Container Control Programme, implemented jointly by UNODC and the World Customs Organization, assists Governments in creating sustainable enforcement structures in selected seaports to minimize the risk of maritime containers used for transnational organized crime, such as illicit drug trafficking or other forms of black market activity.[173] This initiative resulted in the establishment of dedicated, specialized Joint Port Control Units in the principal ports and container terminals of participating States and training of their multi-agency personnel to apply new professional skills to identify, target and interdict sea containers of interest to authorities. Though capacity-building and skills transfer is a key component of the technical assistance delivered through this initiative, its effectiveness grows through increasing operational cooperation between an expanding network of law enforcement professionals who carry out container profiling, selection and search.

263. At the regional level, one relevant example would be the OAS/Inter-American Drug Abuse Control Commission, which provides capacity-building in the context of its Promotion of Public/Private Sector Cooperation in National Port Security Programs. Its Working Group on Maritime Narcotrafficking, which includes experts in maritime narcotrafficking control, port security and other related fields, works to assist member States in addressing gaps or problems related to their control of ports and the maritime movement of illicit drugs and related contraband. This could include the development of model legislation or regulation, means to target cargos or vessels of interest and mechanisms to promote cooperation, collaboration and the exchange of information.[174]

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[172] Division for Ocean Affairs and the Law of the Sea contributed to these activities.

[173] www.unodc.org.

[174] www.cicad.oas.org.

264. The OAS/Inter-American Drug Abuse Control Commission also provides training and technical assistance to officials in member States to enhance their capacity to identify and intercept illicit drugs and relate contraband transported by sea. UNODC plans to establish centres of excellence in the Caribbean region on maritime security and law enforcement cooperation, law enforcement and judicial agencies, forensics, and urban crime.[175] UNODC, in the framework of the project "Law Enforcement and Intelligence Cooperation against Cocaine Trafficking from Latin America to West Africa", has also created a secure system for the exchange of information to which anti-drug authorities of 14 countries, 2 beneficiaries, and the liaison officers accredited by the European Union in those countries, have access.[173] The Nineteenth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, held a round-table discussion on strengthening cooperation among the bodies involved in tackling drug trafficking between the States of Latin America and the Caribbean and the States of Africa, in particular West Africa.[176] The Japanese Coast Guard and UNODC co-hosted an Asia-Pacific Maritime Drug Law Enforcement Seminar in December 2009 in Tokyo. The objective of these seminars is to enhance multilateral cooperation among partner countries in East and South-East Asia by promoting information exchange and sharing experiences. Capacity-building for maritime drug law enforcement also occurs on the bilateral level.[177]

11. Protection of archaeological and historical objects

265. The study of underwater archaeological and historical objects is a relatively recent discipline requiring a high level of knowledge and technical expertise, which is limited to a small number of experts worldwide.[178] The Convention on the Protection of the Underwater Cultural Heritage 2001 aims, among other objectives, to ensure and strengthen the protection of such underwater cultural heritage.[178] States parties to the Convention are obliged to cooperate and assist each other in the protection and management of underwater cultural heritage,[179] as well as to cooperate in the provision of training in underwater archaeology, in techniques for the conservation of underwater cultural heritage and, on agreed terms, in the transfer of technology relating to underwater cultural heritage.[180]

266. At the first session of the Meeting of States Parties to the Convention, a scientific and technical advisory body was established,[181] which can provide scientific and technical advice related to the implementation of the rules[182] concerning activities directed at underwater cultural heritage.[183]

267. UNESCO, as secretariat for the Convention, also undertakes various operational activities under the Convention, including capacity-building and an involvement in centres outside UNESCO. These centres are associated with

[175] UNODC, Annual Report 2009, p. 44.
[176] UNODC/HONLAC/19/5.
[177] See, for example, http://manila.usembassy.gov/wwwfps23.pdf (highlighting cooperation between the United States and the Philippines in maritime drug law enforcement).
[178] See http://portal.unesco.org.
[179] Convention on the Protection of the Underwater Cultural Heritage 2001, article 19.
[180] Ibid., article 21.
[181] UCH/09/MSP2/220/2 IX.
[182] CLT/CIH/MCO/2009/PI/100.
[183] Convention on the Protection of the Underwater Cultural Heritage 2001, article 33.

UNESCO, although they are not part of it, and themselves engage in capacity-building activities related to the protection of archaeological and historical objects, thereby contributing to the UNESCO programme. The International Centre for Underwater Archaeology in Zadar, Croatia, is the first such centre.[184] Under a UNESCO regional project, the Asia-Pacific Regional Field Training Centre on Underwater Cultural Heritage was established and conducted its first workshop late in 2009 in Thailand.[185] Further training projects are planned. UNESCO has also compiled a list of underwater archaeology courses at universities and other institutions.[186]

12. Settlement of disputes

268. The Voluntary Trust Fund to assist States in the settlement of disputes through the International Tribunal for the Law of the Sea, established by General Assembly resolution 55/7 and administered by the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, provides financial assistance to States Parties to United Nations Convention on the Law of the Sea for expenses incurred in connection with cases submitted, or to be submitted, to the Tribunal, including its Seabed Disputes Chamber and any other Chamber. According to the statement of accounts, the Trust Fund balance at the end of December 2009 was approximately $140,997.74.

269. In order to contribute to a better knowledge of the dispute-settlement system established by the United Nations Convention on the Law of the Sea, the International Tribunal for the Law of the Sea has so far held seven regional workshops in Dakar, Kingston, Libreville, Singapore, Bahrain, Buenos Aires, and Cape Town, South Africa. The purpose of the workshops was to provide insight into the procedures for the peaceful settlement of disputes related to the law of the sea, with special attention given to the jurisdiction of the Tribunal and the procedure for bringing disputes before it. The workshops are designed for officials and experts specializing in the field of the law of the sea from Ministries of Foreign Affairs, Justice, Fisheries, Transport and the Marine Environment.[187]

270. The International Tribunal for the Law of the Sea-Nippon Training and Capacity-building Programme on Dispute Settlement under the United Nations Convention on the Law of the Sea was established in 2007, with the support of the Nippon Foundation of Japan, to provide junior-to-mid-level government officials and researchers with advanced legal training in international dispute settlement under the Convention. The programme has four main elements consisting of courses and lectures; skills training, workshops and a moot court case; group visits and short individual studies; and research. Cooperative arrangements with the Max Planck Institute for Comparative and Public International Law in Heidelberg, Germany, and the Max Planck Institute for Private International Law in Hamburg, Germany, form an integral part of the programme. Upon completion of the programme, participants are expected to have acquired the necessary knowledge and skills to enable them to provide legal and expert advice to their Governments on the various mechanisms of

[184] UNESCO resolution 34 C/Resolution 40.

[185] www.unescobkk.org.

[186] CLT/CIH/MCO/2007/PI/37.

[187] For more details on the International Tribunal for the Law of the Sea capacity-building activities, see www.itlos.org.

dispute settlement under the United Nations Convention on the Law of the Sea and in their implementation. Since its inception in 2007, 15 fellows from 15 States have participated in the programme.

271. In addition, the International Tribunal for the Law of the Sea offers internships to junior government officials or students of law, international relations, public relations, political science, library science and translation. The internship programme, which is normally full time, is designed to give participants the opportunity to gain an understanding of the work and functions of the Tribunal and to enable the Tribunal and its members to benefit from the assistance of persons with relevant knowledge and skills in areas within the scope of activities of the Tribunal. Since its inception in 1997, 210 interns from 69 States have participated in the programme.

272. In this connection, with the aim of promoting human resources development in developing countries by providing officials, practitioners and students with opportunities for research, training and practical experience in the law of the sea, the Korea International Cooperation Agency Grant was established in order to assist candidates from developing countries who meet the eligibility criteria to participate in the International Tribunal for the Law of the Sea Internship Programme. Participants' travel and a monthly subsistence allowance are covered by the Grant. Since the establishment of the Grant in 2004, 72 interns from 35 States have been awarded funding.

273. Other examples of capacity-building activities in the settlement of disputes include the International Foundation for the Law of the Sea, which was established in 2003 to promote the opportunities provided by the International Tribunal for the Law of the Sea for the peaceful settlement of law of the sea disputes and the further implementation of the United Nations Convention on the Law of the Sea. The International Foundation seeks to make an effective contribution to the pursuit of this goal through the sustained promotion of learning and research in the field of international law of the sea by providing training opportunities and the organization of conferences and symposia, both at the seat of the International Tribunal for the Law of the Sea in Hamburg and around the world. The International Foundation places particular importance on assisting nationals from developing countries to exercise the rights and comply with the obligations of States parties arising under the United Nations Convention on the Law of the Sea. The International Foundation Summer Academy (see para. 134) is open to highly qualified graduates in fields related to maritime affairs, including diplomats, civil servants and lawyers.[188]

C. International cooperation and coordination

274. There are numerous national and international, including regional, institutions, both within and outside the United Nations system, with competence in marine issues, which play a critical role in capacity-building, as evidenced by the activities/initiatives outlined in the previous sections of this chapter. In view of the need for better coordination and strengthening of links among them, as well as to ensure that an integrated and multisectoral approach to marine issues is pursued at all levels, a number of States, international, regional and subregional organizations

[188] For further details, see www.iflos.org.

have established cooperative mechanisms to provide capacity-building in a holistic and coordinated manner.[189]

275. This section provides some examples of cooperation among international organizations and of partnerships and initiatives between international organizations and States, based mainly on the information provided in the contributions to the present report. Other examples are provided in the previous sections (see, for example, section B.3 and paras. 110, 111, 133 and 134, 163, 183, 233, 245, 249, 250 and 259).

276. Participation in the meetings of international organizations has the potential to foster cooperation and coordination among States and international organizations[190] and contribute to capacity-building by providing an opportunity for a deeper understanding of the various issues affecting the oceans and the identification of areas for common action. In that regard, several international organizations facilitate the participation of representatives of developing countries in their meetings through appropriate financial means. For example, the General Assembly established the Voluntary Trust Fund for the purpose of assisting developing countries, in particular the least developed countries, the small island developing States and landlocked developing States, in attending meetings of the Consultative Process.[191] The Trust Fund is administered by the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations. According to the statement of accounts, the Trust Fund balance at the end of December 2009 was approximately $56,164.14.

1. Cooperation among international organizations

277. UN-Oceans, an inter-agency coordination mechanism on ocean and coastal issues,[192] carries out its work mainly through ad hoc time-bound task forces, two of which are currently in operation. The Task Force on Biodiversity in Marine Areas Beyond National Jurisdiction, led by the Convention on Biological Diversity Secretariat and the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, is preparing a compilation of information on existing tools provided for under relevant international instruments for the conservation and sustainable use of marine biodiversity and the ways to strengthen existing mechanisms of cooperation and coordination among intergovernmental organizations and bodies. The Task Force on Marine Protected Areas and Other Area-based Management Tools, co-led by the Convention on Biological Diversity Secretariat, UNESCO/IOC, FAO and UNEP, with the participation of IMO, UNDP, the World Bank, ISA and the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, is preparing a comparative analysis of

[189] It was noted, in particular, that with regard to marine science, such mechanisms would be better placed to provide data and information that would be in a compatible format and ready for use by developing States. See the statement of the Group of 77 and China on capacity-building at the third meeting of the Consultative Process (8 May 2002), available at www.g77.org/Speeches/040802b.htm.

[190] A/64/66, para. 189.

[191] The Trust Fund was established by the General Assembly in its resolution 55/7. See also Assembly resolution 62/215.

[192] A/59/62, paras. 298-299. The current membership of UN-Oceans is as follows: FAO, IAEA, IMO, IOC, ISA, UNDP, UNEP, UNIDO, WMO, the World Tourism Organization, the CBD Secretariat, the Division for Sustainable Development and Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations.

activities dealing with marine-protected areas, integrated coastal area management and marine spatial planning carried out or planned by UN-Oceans members. That review would provide opportunities for mutual assistance and synergies among the members in the implementation of their respective programme activities.

278. The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection is an advisory body whose mission is to provide authoritative, independent, interdisciplinary scientific advice to organizations and Governments to support the protection and sustainable use of the marine environment.[193] The reports and studies series of the Group provide scientific information and assessments of the marine environment.[194] In recent years, the Group has undergone a modernization and revitalization process, which was supported in particular by the Swedish International Development Cooperation Agency under the condition that a strong capacity-building element was built into the activities of the Group. The Agency support aims in particular to strengthen the network of the Joint Group of Experts by increasing the number of developing country experts participating in its activities. Furthermore, meetings of the Group held in developing States have included special thematic workshops aimed at fostering cooperation and exchange of information among and with scientists from developing countries whose participation was sponsored by the Swedish International Development Cooperation Agency. For example, in 2008, the Group held a special session on marine environmental protection and science in the West and Central African context.[195] Ensuing discussions highlighted the need for transfer of knowledge within the region and sharing of data; capacity-building, the difficulties of translating scientific findings into management and decision-making tools to address problems in the marine environment; and difficulties in reaching out to decision makers, particularly with regard to the need for addressing long-term issues.[196]

279. The Convention on Migratory Species of Wild Animals is collaborating and has agreed joint work programmes with a number of other convention secretariats, intergovernmental and non-governmental organizations, which include capacity-building activities.

280. To address the capacity and human resource constraints within the Western Indian Ocean region, the Secretariat of the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, the Nairobi Convention, developed partnership arrangements with the Baltic Marine Environment Protection Commission and signed a memorandum of understanding with a number of international and regional organizations, including the WWF, IUCN and the Western Indian Ocean Marine Science Association.[197]

281. In the context of fisheries, the South East Atlantic Fisheries Commission has in recent years been invited as an observer to the Meeting of the Secretariats of regional fisheries management organizations in the North Atlantic. NEAFC has assisted the South East Atlantic Fisheries Commission in setting up its operations

[193] For more information on the Group, see http://www.gesamp.org.

[194] For a list of reports of the Group, see www.gesamp.org/publications.

[195] The Joint Group 35 meeting took place in Accra, Ghana, in 2008.

[196] See report of the meeting, document No. 78 to be made available at http://www.gesamp.org/publications.

[197] See footnote 54.

and hosts its vessel monitoring system database, and has arrangements with the Northwest Atlantic Fisheries Organization and the South East Atlantic Fisheries Commission to create pan-Atlantic illegal, unreported and unregulated vessel lists between the three organizations.

2. Partnerships/initiatives between international organizations and States

282. In order to support a global partnership for development, IMO has attached great importance to partnership arrangements for the delivery of its technical cooperation activities. It will be recalled that in 2003, the IMO Assembly adopted a resolution on the development and improvement of partnership arrangements for technical cooperation.[198] As of 31 December 2009, 61 partnership arrangements were operational, many of which were concluded with developing countries.

283. Through the GEF/UNDP/IMO project, entitled, Building Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ships' Ballast Water, a global project coordination mechanism consisting of global, regional and national task forces and corresponding coordinating organizations was successfully established for the period 2007 to 2012.[199] The project has delivered over 14 regional training courses covering various aspects of ballast water management and port baseline surveys, and facilitated over 15 national stakeholder workshops and 6 regional strategy development workshops. More than 70 countries in 14 developing subregions have benefited from the project. A number of strategic partnerships have also been developed with organizations, such as IUCN, IOI, UNEP Regional Seas, WMU, and regional development banks, such as the European Bank for Reconstruction and Development.

284. Through the GEF International Waters focal area, and in partnership with the United Nations agencies and multilateral development banks, assistance has been provided for collaborative work to States sharing 19 large marine ecosystems, which constitute over one half of the large marine ecosystems shared by developing countries. A total of 127 GEF recipient countries have collaborated with another 21 Organization for Economic Cooperation and Development (OECD), non-GEF recipient States[200] on those large marine ecosystem and coastal management projects, yielding a total of 148 States working together in those GEF projects. Some examples of projects which involve a significant number of States include the GEF Danube/Black Sea Basin Strategic Partnership with UNDP and the World Bank that realigns the policy dialogue with 15 countries of the basin to include pollution reduction reforms, habitat restoration, and priority pollution reduction investments; and the GEF/World Bank/FAO/WWF project entitled "Sustainable Fisheries Investment Fund for the Large Marine Ecosystems of Sub-Saharan Africa", which was initiated as a complement to the ongoing and planned GEF large marine ecosystem projects in Africa. The partnership is assisting the coastal States bordering those large marine ecosystems to meet the fisheries targets for 2010 and 2015 set by the World Summit on Sustainable Development and to establish ecosystem- and rights-based approaches to fisheries management. Two other programmes are the Coral Triangle Initiative with GEF/Asian Development Bank

[198] See resolution A.965(23).

[199] See also http://globallast.imo.org.

[200] For example, Australia, Denmark, France, Italy, Japan, Sweden and the United States of America.

(see para. 173) and the Sustainable Mediterranean Programme with GEF/World Bank.

285. The South Pacific Regional Environment Programme is a coordinating agency for the European Union-funded project on capacity-building for supporting multilateral environmental agreements, which provides negotiation training and other capacity-building activities for environmental officers in South Pacific Regional Environment Programme member Pacific Island countries.

286. The UNDP-GEF Agulhas/Somali Large Marine Ecosystem Project, referred to in paragraph 147 above, systematically engaged regional entities, such as the Nairobi Convention, the Indian Ocean Tuna Commission, and others, as well as the African Union, in discussions about ways in which regional governance structures can work effectively to participate in, and eventually play a direct role, in the development and implementation of strategic action plans.

287. The Economic and Social Commission for Asia and the Pacific (ESCAP) is administering a Multi-Donor Trust Fund for Tsunami Early Warning Arrangements in the Indian Ocean and Southeast Asia. The Fund supports different elements of early warning, including regional monitoring and warning capacities, disaster risk assessment, standard operating procedures, education and awareness, and drills.[201]

288. The laying of submarine cables is a multi-sectoral, multi-stakeholder activity. For example, Parties to the East African Submarine Cable System,[202] which aims to install an underwater fibre optic telecommunications cable linking East Africa, include the World Bank, through the International Finance Corporation, development financial institutions and private sector interests, creating a complex hybrid model of financing and ownership.[203]

289. Owners and operators of submarine cables collaborate through the International Cables Protection Committee,[204] whose purpose is to promote the safeguarding of submarine cables against man-made and natural hazards. The Committee, a non-profit organization, facilitates the exchange of technical, legal and environmental information concerning submarine cable installation, maintenance and protection. It has over 100 members representing telecommunication and power companies, government agencies and scientific organizations from more than 50 countries, and encourages cooperation with other users of the seabed.

V. Challenges in implementing capacity-building activities/initiatives and opportunities for ways forward

290. Adequate country capacity is one of the critical missing factors in current efforts to meet the Millennium Development Goals[205] and other international commitments. As indicated in previous chapters, there are many ongoing capacity-building activities/initiatives related to ocean affairs and the law of the sea.

[201] See also http://www.unescap.org/pmd/tsunami_index.asp.
[202] See www.eassy.org.
[203] See http://web.worldbank.org.
[204] See www.iscpc.org.
[205] OECD, "The Challenge of Capacity Development: Working Towards Good Practice" (2006).

However, limited information on all the activities/initiatives that are being undertaken in this field and the absence of a comprehensive assessment of such activities/initiatives (see para. 95), constrains the ability to reach adequate conclusions on the challenges in implementing capacity-building activities/initiatives in ocean affairs and the law of the sea. Therefore, while not exhaustive, the present chapter is focused primarily on providing an overview of the commonly observed challenges and opportunities encountered in the planning and delivery of capacity development activities/initiatives. Specific examples of best practices and opportunities to address challenges in the field of oceans and the law of the sea, identified on the basis of information provided by international organizations in their contributions, are also included in the present chapter and its footnotes.

A. Context, needs and stakeholders

291. Experience has shown that capacity-building initiatives cannot be effectively conceived and delivered, let alone build sustained capacity, in isolation of the context within which they seek to build capacity, in particular, without giving full consideration to the beneficiaries.[206]

292. With respect to context, capacity-building activities/initiatives often suffer from insufficient linkages to international, national or local priorities, policies, frameworks and programmes, and are often donor-driven and self-motivated.[207] This is observed when projects have been developed without full political and stakeholder participation and buy-in. Such activities/initiatives suffer from a lack of relevance to the national context and to broader development considerations (for example, poverty alleviation, implementation of convention regimes or governance reform), and may place emphasis on reinforcing capacity in areas of little contextual relevance.[208]

293. It is also observed that lack of clear international, national and local priorities, policies and frameworks hinders the effective deployment of capacity-building initiatives and erodes the sustainability of their outcomes and goals.[209]

294. Even in cases where linkages have been established, capacity-building initiatives may suffer from insufficient political support and multi-stakeholder buy-in, both of which may seriously constrain their ability to deliver on results and ensure long-term sustainability of objectives.

295. In order to address these challenges, capacity-building initiatives are better elaborated within existing frameworks at the national (for example, national sustainable development strategies), regional (for example, regional multilateral environment agreements) and international (for example, convention regimes and global action plans) levels. In addition, context-specific and highly participatory

[206] For a comprehensive analysis on the topic, see OECD-DAC/LenCD (Jenny Pearson), Seeking Better Practices for Capacity Development: Training and Beyond, 2010, p. 64.

[207] See footnote 54.

[208] See Global Forum on Oceans, Coasts and Islands, Working Group on capacity development, policy brief on capacity development (30 March 2008).

[209] Although this condition is pervasive within all ocean sectors, it is well exemplified by the emerging and rapidly developing renewable ocean energy sector, which, because of its nascent nature, suffers from a lack of targeted national priorities and policies. The IEA-OES regards this condition as a major barrier for developing reliable technologies to realize the global potential of this renewable energy source to reducing greenhouse gas emissions.

needs assessments are important as the starting point for all projects. Carefully performed needs assessments are critical to priority setting and programme design and are essential if the capacity-building programmes are to reflect the specific conditions and priorities of beneficiary countries.[210] Large-scale projects could be preceded by a needs-assessment phase aimed at determining the exact needs of the stakeholders so as to ensure their effective engagement and ownership from the beginning.[211] In this regard, efforts should be made to identify all relevant stakeholders. It is advisable to give particular attention to gender mainstreaming.[212] It is critical that needs assessments, and subsequent monitoring and evaluations of capacity-building activities/initiatives, remain conscious of the dynamic and evolutionary nature of the context, including at the regional and international levels. Adaptation of curricula and continuing capacity-building opportunities are required so as to ensure that initiatives remain relevant and sustained in the rapidly changing and expanding field of ocean affairs and law of the sea.

296. In order to ensure maximum effectiveness and sustainable results, capacity-building initiatives should also be realistic in their scope and build on the experience and strengths of the recipients and existing arrangements, thereby going well beyond the simple provision of guidelines and tools.[213] In this regard, opportunities lie in implementing programmes through collaborative arrangements with national centres of excellence (see also section D below), train-the-trainer approaches and making use of context and language-specific learning materials (see para. 54).

297. Capacity-building is a continuing process of interlinking interventions at various levels. As described by Partnerships in Environmental Management for the Seas of East Asia, this process "begins with education and training, it is nurtured and expanded through application, hands-on experience, information sharing, knowledge development and transfer, and basically learning from each other. Each activity of the project entails some form of capacity development, mobilizing existing intellectual capital at the community level, scientific institutions, government agencies, the private sector, and/or the international community, for the

[210] UNEP paper, entitled, "Ways to Increase the Effectiveness of Capacity-Building for Sustainable Development", prepared for the 2006 Annual Conference of the Association for Impact Assessment, Norway, available at www.unpei.org.

[211] For example, in accordance with the GEF Strategic Approach to Capacity-Building its projects embed a capacity-building component, which is aimed at capacities that are seen as critical in achieving the priorities of the projects. In its contribution, Partnerships in Environmental Management for the Seas of East Asia also highlights the importance of this approach in "To ensure success and sustainability, capacity-building and knowledge transfer are built into PEMSEA activities from project conceptualization to actual implementation and monitoring, as well as in scaling up efforts". See also Berlin Statement on International Development Training: Final Declaration of the High Level Retreat on the Effectiveness of International Development Training (June 2008).

[212] For example, as reported by IMO its Global Programme on Integration of Women in the Maritime Sector, launched in 1988, has been strengthened. Recent activities under the programme include assistance to the establishment of regional associations worldwide for women in the maritime sector and its follow-up.

[213] Human Resources and Social Development Canada, Planning Workplace Education Programmes: Transfer of Learning, available at www.hrsdc.gc.ca. The Convention on Biological Diversity secretariat, in its contribution, observed that guidelines and similar tools are not necessarily the best means for people to learn complex activities, such as integrated marine and coastal area management or marine and coastal protected areas management unless accompanied by appropriate training; sharing of experiences through workshops and exchange visits are also valuable.

benefit of the work programme and over the longer term, for sustainable social, economic and environmental development".

298. In the context of Agenda 21, the GEF/UNDP/UNEP National Capacity Needs Self-Assessment programme can be considered as an example of an approach in the area of environmental management, which seeks to address the aforementioned set of challenges. It represents one of the first comprehensive approaches by the international community to support in-country assessments of the full set of individual, organizational, and systemic weaknesses to the national implementation of the three Rio Conventions on biodiversity, climate change and desertification. Under this programme, country-driven National Capacity Needs Self-Assessments are undertaken in accordance with country priorities and contexts, which could subsequently serve as the basis for the development of national plans for corresponding capacity-development requirements.[214]

299. The International Union for Conservation of Nature project on "Management of Climate Change Impacts on Coral Reefs and Coastal Ecosystems in Tsunami-affected Areas of the Andaman Sea and South Asia", described in paragraphs 174 and 215 above, also provides an example of context-specific project planning through a methodological approach, building on a detailed review as well as extensive consultations with, and involvement of, communities.

B. Levels and modes of delivery of capacity-building

300. As noted in chapter II, capacity-building initiatives are generally situated within the context of the three-levels framework: individual (human resource development), the institutional (institution building and strengthening) and the societal (the enabling environment) levels (see paras. 25-32 above).[215] However, many initiatives remain significantly challenged in addressing the societal and institutional capacity gaps through capacity-building at the individual level.[216] Thus, the effective implementation of convention regimes, national policies, as well as the development of corresponding governance frameworks remain very challenging for States.

1. Short-term approach to delivery

301. It is observed that delivery of capacity-development programmes for the most part takes the form of thematic short-courses (usually a week in length), which aim to reinforce the participants' knowledge and/or skills in a specific field. While such human resource development initiatives are necessary in building individuals' skills

[214] See the GEF/UNDP/UNEP Capacity Development Global Support Programme for Environmental Management and an overview of lessons learned through some 150 national National Capacity Needs Self-Assessments and for examples of good practices from the National Capacity Needs Self-Assessments, see http://ncsa.undp.org. In the same context, the UNDP Capacity 2015 Programme has been recognized as an "important mechanisms for supporting local and national development capacity-building efforts" aiming to develop the capacities identified by developing countries as required to meet their sustainable development goals under Agenda 21 and the Millennium Development Goals (see www.undp.org/capacity2015/index.html).

[215] See, among many, OECD, "The Challenge of Capacity Development: Working towards Good Practice" (2006).

[216] Berlin Statement, see footnote 211.

and knowledge, their outcomes are often limited owing to, inter alia, their ad hoc nature, their unfocused (or too focused) curricula and the lack of follow-up and refresher events. The outcomes also fail to account for the context and level-specific constraints individuals face, thus yielding highly specialized individual capacity with limited impact on the institutional and societal levels.[217]

302. From a technological point of view, the one-off transfer of a particular technology or equipment without adequate training for its use may result in limited success. Similarly, the transfer of a technology without training of the local manpower to replicate and develop the technology may also be limited.

2. Medium- and long-term approach to delivery

303. Capacity-building initiatives delivered over longer periods (multiple months to several years) provide significant opportunities to supplement the thematic short-courses and address the lack of impact at the institutional and societal levels. These initiatives provide an opportunity for more advanced levels of learning (knowledge, comprehension and application) through multidisciplinary[218] or highly specialized curricula, including research fellowships nurturing the highest levels of learning (analysis and evaluation).[219] In essence, these initiatives seek to impart capacity to build, for example, normative and management frameworks, as opposed to first building capacity to effectively manage existing frameworks. As such, their ultimate goal is to build capacity at the institutional and societal levels. This category of initiatives also includes formal academic opportunities, notably various specialized marine law and management Master's degree programmes and courses of Doctoral studies.[220]

304. While these longer initiatives can provide considerable opportunities for the development of individuals, institutions and society, they represent significant implementation challenges including, inter alia, the fact that they require a sizeable investment in time, which institutions are often reluctant to authorize since this may result in a very significant reduction in human resources over an extended period of time for States with small public administrations.[221] Furthermore, the relevance and/or multidisciplinary nature of higher-learning curricula may be difficult to justify to institutions, particularly in the context of persistent sectoral approaches to oceans management and rigid management structures and financial constraints.

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[217] UNCTAD, Capacity Development: Note by the UNCTAD secretariat (TD/B/50/9).

[218] See, for example, the training programmes mentioned in para. 134 of the present report.

[219] See, for example, the fellowships mentioned in paras. 125 and 126 of the present report.

[220] See, for example, the Master's programmes offered by Dalhousie University, University of Wollongong and University of Rhode Island; and marine law programmes offered by the Virginia University, University of Southampton and the University of Nice Sophia Antipolis. For an expanded listing of internationally recognized academic institutions offering graduate and post-graduate programmes in ocean affairs and the law of the sea, see the participating host institution list of the United Nations-the Nippon Foundation of Japan Fellowship Programme, available at www.un.org/depts/los/nippon.

[221] For example, it is not rare for civil servants working in small Ministries to hold several portfolios and may be the only individual, or one of the very few individuals with competencies in a particular area. In such a context, it may be difficult for the Government to authorize an extended leave of absence for capacity-building, even if it would be of long-term benefit to the State. Global Forum on Oceans, Coasts and Islands, Capacity-Building Assessments in Small Island Developing States in the Pacific, Caribbean, Indian Ocean, the Atlantic and the Community of Portuguese-Speaking Countries, 2006.

3. Selection

305. The proper selection of individuals is critical so as to ensure that these have the aptitude for training or advanced learning, and the necessary professional profiles to be able to effectively deploy their capacity at the desired level. Addressing the challenges of identifying relevant and competent individuals also has a direct impact on the outcomes of capacity-building initiatives at each level. For programmes to target the most suitable individuals, it is essential that they work closely with institutions so as to build capacity identified as directly relevant and immediately applicable to the fulfilment of individuals' mandates. Benefits derived from these interventions should be clearly understood by institutions and society as providing reciprocal benefits. An additional challenge in the selection process lies in the short amount of time at the disposal of the organizers of capacity-building events to determine the most appropriate and most responsive focal points within each State, and to determine the fastest channels of communications to proceed with the selection. In addition, at times nominations for candidates are delayed, resulting in the participation of "non-targeted" participants. Furthermore, when a training opportunity arises involving travel to another State, it is not uncommon that candidates chosen by the beneficiary States are selected for extraneous reasons, rather than their relevant expertise. The insufficient control of the organizers over the selection of participants in specific training events also has an impact on the results of the training and the evaluation, including the "post-evaluation" of its effectiveness (see also section C below).

4. Policymakers and decision makers

306. There is also a marked absence of capacity-building activities/initiatives which specifically target policymakers and legislators, who as individuals occupying key positions can generate significant change across and between levels and sectors. Without the mobilization of these individuals, capacity-building activities/initiatives often do not affect the institutional and societal levels, and they may lead to counterproductive capacity-bottlenecks and eventual emigration of qualified individuals.[222]

307. Significant opportunities in this regard lie in delivery of succinct and highly context-relevant interventions, such as high-level retreats or leadership seminars,[223] and include outputs such as declarations, action plans or similar public manifestations of high-level commitments.[224]

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[222] Capacity-bottlenecks are often observed when well-trained individuals are consistently limited in what they can apply owing to the limitations of the institutions and/or society they function within. These conditions often lead to brain-drain, as able and motivated individuals seek to realize their potential in contexts which are seen to foster their abilities and provide opportunities. This unfortunate phenomenon is a result of, inter alia, capacity-building initiatives which have failed to take into consideration the context and level of intervention within which they are being delivered.

[223] In its contribution, the Intergovernmental Oceanographic Commission of UNESCO reported that as part of the UNESCO biannual General Conference, it had organized a two-day Ministerial Round Table on Oceans, entitled "Building stewardship for the Ocean: The contribution of UNESCO to responsible ocean governance" in October 2009 in Paris. A total of 32 ministers and 25 national delegations attended.

[224] Among several examples, the Berlin Statement, referred to in footnote 211, is particularly relevant. See also OECD Development Cooperation Directorate's Aid Effectiveness webpage at www.oecd.org.

5. Levels and interlinkages

308. If the individual level is often the beneficiary of capacity-building activities/initiatives (human resource development), it must be recognized that the individual works within an institutional context (administrative structure and policies) and the institution exists within a societal framework (laws, civic engagement, such as voting) and thus capacity-building strategies must deploy multi-level interventions to be effective. Often activities and outputs are geared to the individual, leaving the achievement of higher outcomes and goals to the "trickle-up" effect. Conversely, it is not sufficient to enact a legislative framework if there is no institutional or human capacity to implement it, let alone comprehensive political and stakeholder buy-in.[225]

309. The effectiveness of capacity-building at the institutional level has traditionally been challenged by, inter alia, migration of skilled individuals, limited or slow uptake of new management approaches, uncoordinated interventions, limited monitoring and evaluation, and little high-level buy-in. The potential role of the private sector is also often overlooked, as they are not only effective stakeholders who possess knowledge, experience and data regarding their activities, but their own capacity can also be developed with regard to their activities.

310. Capacity-building activities at the societal level remain sparse in ocean affairs and the law of the sea, and are generally limited to specific activities/initiatives undertaken within the context of the wider dissemination and implementation of convention regimes. However, more broadly, the oceans are subject to many public awareness campaigns which seek to effect change on the societal level, including through the designation by the United Nations of 8 June as World Oceans Day.[226] In this respect, capacity-building activities/initiatives often operate within a regional context. Examples including IOC activities at the regional level (see paras. 101, 107 and 215) and the Commission for the Conservation of Antarctic Marine Living Resources Project in Southern Africa were noted by organizations in their contributions (see para. 115 above). It should also be noted that many broader global initiatives seeking to develop capacity will also indirectly affect the ocean sector. These may include, inter alia, governance, judicial and social justice reform agendas. For example, in its contribution, the Office of the High Commissioner for Human Rights (OHCHR) notes that observing "the protection of marine environment and ecosystems through a human rights lens draws attention to how environmental degradation has a direct impact on the lives and livelihoods of individuals and communities. For example, coral bleaching caused by climate change has a direct impact on coastal communities dependent on fishery resources. The human rights framework also underlines how affected communities must be involved in decision-making on environmental matters and how such involvement is a critical component of sustainable development."[227]

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[225] See UNCTAD report, "The biotechnology promise: capacity-building for participation of developing countries in the bioeconomy" (New York and Geneva, United Nations, 2004), which demonstrates the importance of not only human resource development, but also of financing biotechnology development, management capacity development, regulatory capacity development, and the development of the capacity for technology acquisition and diffusion.

[226] See www.un.org/depts/los.

[227] Another example is provided by the global trend to improve governance of small-scale and artisanal fisheries, from current top-down State control to co-management systems. The new approach allows government authorities and small-scale fishers to share the responsibility and authority for the management of a fishery or a particular fishing area.

311. Therefore, capacity-building activities/initiatives must recognize the limitations inherent in each level of intervention and seek opportunities to link outputs and outcomes at one level with existing or new activities and goals at other levels. Such approaches may also engender cross-sector and multi-level collaboration and partnerships beyond the capacity-building project. These incidental outcomes should be identified and fostered, as they may serve to leverage the comparative advantages of each level, thereby not only reinforcing the sustainability of the intervention at one level, but also nurturing capacity-development at other levels.[228] In this respect, demonstration projects, their subsequent scaling-up and their replication have been noted as providing important opportunities. Such examples are afforded in activities of the Partnerships in Environmental Management for the Seas of East Asia, as noted by the Convention on Biological Diversity secretariat, as these demonstrate a way of approaching the scaling of demonstration projects, a key priority for capacity-building. The initiative of the Partnerships on integrated coastal management demonstration sites illustrates how small local initiatives may provide a valuable opportunity to test management methods.[229] This can then be scaled up to include surrounding areas.

C. Monitoring and evaluation

312. There are significant challenges in the monitoring and evaluation of capacity-building activities/initiatives as the ultimate beneficiary is often the societal level, but such benefits are derived through activities, outputs and outcomes at the individual and institutional levels. This calculation is further complicated by the human element: quantifying an individual's relative capacity and ability to deploy newly acquired capacity to effect a measurable impact within a dynamic context and along non-linear career paths.[230]

313. Despite these challenges, monitoring and evaluation are required so as to ensure that capacity-building activities/initiatives are reaching their goals, to document their results, to draw lessons for improving future programmes,[231] and, increasingly, as formal donor requirements. However, many capacity-building activities/initiatives are not systematically and thoroughly evaluated outside of donor-specified frameworks, and these are often limited in scope and sometimes only seek to account for numbers of trainees per project cycle.

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[228] A scenario of such multilevel capacity-building drivers may be provided through a simplified example: provision of specialized capacity in boundary delimitation (for example, hydrographic skills) may lead to the development of a multi-agency government programme on the delimitation of boundaries, the creation of which may call for further capacity-building interventions (for example, legal aspects) and the eventual engagement of the national political and diplomatic levels. This example could also manifest itself in reverse, originating in the institutional or systemic levels, and calling for the reinforcement of capacity at the individual technical level.

[229] See footnote 48.

[230] Such complications are well illustrated by, but not limited to, government officials who may be subjected to mobility policies within the civil service as they progress through their careers: an individual who has benefited from significant capacity development in the law of the sea may be compelled to rotate from an oceans-related desk in the Foreign Service to a Consular Affairs Post, but may return some years later to oceans as a legal adviser within the Ministry of Fisheries. See UNDP, "Capacity Development: a UNDP Primer" (2009).

[231] Horton, D. (ed.), 2001, "Learning about Capacity Development through Evaluation Perspectives and Observation from a Collaborative Network of National and International Organization and Donor Agencies" (The Hague: International Service for National Agricultural Research).

314. Opportunities to address these challenges are significant, and lie in the adoption of formal project management frameworks for capacity-building activities/initiatives and in application of comprehensive monitoring and assessment methodologies.[232] Additional opportunities include increased cooperation and information exchange among providers, and between providers and beneficiaries of capacity-development programmes, concerning methodologies and results obtained in specific contexts, levels and over time.

315. Large-scale programmes, such as those deployed by the GEF (for example, International Waters) and UNDP provide a unified project framework upon which capacity-building initiatives may be developed, monitored and evaluated. At the societal level, and with respect to long-term initiatives, global frameworks such as the Johannesburg Plan of Implementation and the Millennium Development Goals, in particular the indicators of achievement and time frames established in those contexts, may provide for measurable frameworks for outcome and goals of capacity-development initiatives.

D. Coordination, cooperation and funding

316. The exchange of information, knowledge and experience among and between capacity-building providers and beneficiaries, as well as cooperation and coordination of donor and provider programmes, is necessary for the effective delivery of initiatives, the reduction of costly duplication as well as for ensuring their sustained outcomes at all levels.

317. UNDP has observed that capacity-building has come to be considered as being limited in effect and sustainability owing mainly to the dependence on foreign aid and the fact that projects tend to end when money runs out, as well as the assumptions that few or no resources are available locally, which results in externally driven models of assistance involving the mere transfer of knowledge, and which in turn may ignore local realities. This in turn may result in lost opportunities to develop local institutions and to strengthen local capacities and development, i.e., reinforcing endogenous knowledge. "Ownership" is increasingly considered key to capacity, and it is suggested that capacity is built faster when the process is endogenous.[233]

318. Providers have remained challenged by the rapid increase in capacity-development needs (see chapter III) (which are often inadequately defined) and donor policies and practices. Thus, their responses have been fragmented and have resulted in the offering of a multitude of unrelated short-term interventions, which, taken together, rarely enable significant change at the institutional and societal levels. This challenge is also sustained by donor-driven programmes and aggravated

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[232] See, for example, Donald L. Kirkpatrick and James D. Kirkpatrick, "Evaluating Training Programs: The Four Levels" (San Francisco: Berrett-Koehler Publishers, 2006); and United Nations/Department of Economic and Social Affairs, Final Report of the seventeenth meeting of senior fellowships officers of the United Nations system and host country agencies, in November 2008, which focused on evaluation and impact assessment methodologies for United Nations System Fellowships (see http://esa.un.org/techcoop/fellowships/cordin_activity.html).

[233] See footnote 20.

by a manifest lack of funding,[234] inflexible funding conditions, and the absence of predictable and sustained financing for capacity-building, including in marine science. Significant challenges also exist with respect to information, both about capacity-building needs and available programmes.

319. Challenges could be addressed through mechanisms which allow for providers and donors to exchange information, lessons learned and best practices with respect to needs, training cycle management, levels of intervention, partnerships, funding, and perhaps most importantly curriculum development. Coordination and cooperation through partnerships in development and delivery are also necessary so as to eliminate the increasing "training overlap" and build on synergies by taking advantage of complementarity and comparative advantages.[235] Exchanges between providers and beneficiaries should also be enabled, and these should focus on opportunities to better understand context, stakeholder involvement, curriculum and delivery modes. Networks for exchanges among beneficiaries should also be created and sustained, thus allowing for ongoing substantive exchanges and learning, as well as networking.[236]

320. Such opportunities could be developed through the use of existing formal and informal networks of practitioners, researchers and academics, including scientists.[237]

321. Significant opportunities also lie within existing institutions, informal cooperation mechanisms,[238] and international programmes and projects which have specific information clearing house components.[239] It is advisable to pay particular

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[234] For example, the lack of funding for institutional development (infrastructure and personnel development) remains the main hindrance to the capacity of developing countries to develop and use products from biotechnology. See also footnote 225.

[235] Berlin Statement, see footnote 211.

[236] For example, the United Nations — the Nippon Foundation of Japan Fellowship Alumni Programme provides continuing capacity development and networking opportunities for the Fellowship alumni.

[237] For example, Baltic Marine Environment Protection Commission, in its contribution, observed that scientific inputs were developed, inter alia, through networks of scientists. Scientific activities under large marine ecosystem programmes, such as the GEF — Danube/Black Sea Basin Programme, also provide significant opportunities at the regional level. Other examples include the Ocean Data and Information Network for Africa, at the regional level (see www.odinafrica.org); and the Atlantic Coastal Zone Information Steering Committee (see http://aczisc.dal.ca), at the local level. Furthermore, the International Institute for Sustainable Development, in cooperation with the Global Forum on Oceans, Coasts and Islands, hosts an electronic list serve which distributes news and announcements related to oceans policy issues by providing members the ability to post items on oceans policy news, announcements of workshops, conferences, job listings, and information on new publications and other online resources, see www.iisd.ca/email/oceans-L.htm.

[238] For example, in the counter-piracy context, the report of a joint regional needs assessment mission conducted under the auspices of the Contact Group on Piracy off the Coast of Somalia with the participation of a number of States and organizations actively involved in capacity-building was used as the basis for the development of a matrix of possible areas for capacity-building. The matrix was subsequently distributed to all participants in the Contact Group to indicate the areas in which they were already providing assistance or were willing to provide assistance.

[239] For example, OECD Development Assistance Committee; biennial meetings of senior fellowship officers of the United Nations system and host country agencies. See Department of Economic and Social Affairs training and fellowships website at http://esa.un.org/techcoop/

attention to South-South initiatives and linkages,[240] including within academia,[241] as these represent context-specific knowledge necessary for effective capacity-development initiatives, which is often overshadowed by North-South approaches.[242]

322. Cross-certification and accreditation of capacity and professional skills is also a field which necessitates urgent attention, as it formalizes the potential contribution of the individual within management frameworks and allows the public and private sectors to recognize outcomes of capacity-building interventions.[243] Progress in this form would thus significantly contribute to the impact of initiatives at the individual level on the institutional and societal levels.[244] Opportunities for progress in this area, as well as for fostering enhanced cooperation, coordination and funding, also lie in public-private partnerships, as exemplified by Partnerships in Environmental Management for the Seas of East Asia pilot public-private partnerships project completed in 2009.[245]

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fellowships/cordin_activity.html; GEF International Waters Learning Exchange and Resource Network (IW:Learn) at www.iwlearn.net; Coral Triangle Initiative at www.cti-secretariat.net; Benguela Current Large Marine Ecosystem Distance Learning and Information Sharing Tool, which offers networking, information exchange, discussion and online courses at www.dlist-benguela.org, and the Convention on Biological Diversity regional and subregional networks of Focal Points for the Programme of Work on Protected Areas, as referred to by the Convention on Biological Diversity secretariat in its contribution. With regard to science and access to and dissemination of data, see the decision of Intergovernmental Oceanographic Commission of UNESCO to adopt the Ocean Biographic Information System into the International Oceanographic Data and Information Exchange (A/64/66/Add.1, para. 148).

[240] See, for example, Partnerships in Environmental Management for the Seas of East Asia task forces and Regional Centres of Excellence at www.pemsea.org; as well as the United Nations Special Unit for South-South Cooperation (http://tcdc.undp.org), which seeks to, inter alia, "broker the sharing of Southern Development Knowledge and solutions [...] and foster global South-South policy dialogue on major development issues and challenges". A particularly good model of such enabling initiatives can be found through the Unit's "Sharing Innovative Experiences" publication series.

[241] For example, the University Consortium of Small Island States, which seeks to enhance the capacity of graduate education institutions in small island developing States by facilitating the development of institutional and systemic capacity to implement the Barbados Programme of Action (http://www.myucsis.com).

[242] CD Alliance — OECD-DAC, Southern Perspectives on Capacity Development: Time to Act and Learn (2009), available at http://www.oecd.org/dataoecd/42/23/44386394.pdf.

[243] See footnote 206. Some initiatives in this respect have been initiated by Partnerships in Environmental Management for the Seas of East Asia through the ISO certification system, and the International Ocean Institute OceanLearn Programme through the Institute of Marine Engineering, Science and Technology accreditation system.

[244] Such recognition may also alleviate factors leading to "brain drain", as individuals would have a recognized and quantifiable skill-set, which could serve as a basis for recognition and advancement.

[245] In its contribution, UNDP notes that Partnerships in Environmental Management for the Seas of East Asia public-private partnerships initiatives for catalysing environmental investments were completed in Cambodia, China, Indonesia, the Philippines and Viet Nam. Several capacity-building training/guidance materials were produced and training sessions, consultations and consensus-building were conducted as part of the public-private partnerships process. The experiences gained from the public-private partnerships initiatives demonstrated that it is a viable process, as also confirmed by the interest of the Asian Development Bank and the Philippine Build-Operate-Transfer Center to use the Philippine case/experience to strengthen its public-private partnerships component.

VI. Conclusions

323. The report demonstrates that, despite the efforts of States and international organizations, limitations on existing capacity and challenges in the delivery of effective capacity-building continue to exist. These limitations and challenges may constrain the potential for States, in particular developing countries, especially the least developed among them and the small island developing States, to benefit from the oceans and seas and their resources pursuant to the United Nations Convention on the Law of the Sea. They can also adversely affect the ability of States to effectively implement the Convention and other legal instruments. The urgent need to develop and strengthen the capacities of developing countries has been heightened by concerns over meeting the fast-approaching commitments set out in the Johannesburg Plan of Implementation and the Millennium Development Goals.

324. As recognized in the United Nations Convention on the Law of the Sea, cooperation among States and international organizations is an effective means by which capacities can be developed in the field of ocean affairs and the law of the sea, including marine science. Indeed, in view also of the interconnectivity of the oceans, assistance aimed at strengthening capacities to manage ocean-related activities in a sustainable manner can ultimately benefit all States. For example, since marine science and its supporting technologies are the essential underpinnings for all activities in the oceans, increasing the capacity of States in this regard, in particular of developing countries, could enhance scientific understanding of the oceans as a whole and support the sustainable development and management of marine resources on a global level, which also benefit other States.

325. Concerted efforts by all relevant stakeholders are, therefore, required to ensure that capacity-building activities/initiatives are sustainable and target priorities adopted at the national and international levels. A comprehensive assessment of the existing capacities and needs of States in ocean affairs and the law of the sea, including marine science, and of possible ways to enhance those capacities would be an essential starting point for the development of sustained capacity-building programmes and activities, in developing countries, particularly least developed countries and small island developing States. In the context of marine science, the Regular Process, when fully operational, may constitute a useful tool for promoting, facilitating and ensuring capacity-building and transfer of technology, including marine technology, and strengthening collaboration in marine science.